NRCS Natural Resources Conservation Service

GRASSLAND RESERVE PROGRAM

Programmatic

Environmental Assessment

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1.0 BACKGROUND - FARM BILL PROGRAMS AND NRCS CONSERVATION PLANNING

The focus of this environmental assessment (EA) is on the promulgation of rules to implement the Grassland Reserve Program (GRP) as authorized by the Food, Conservation, and Energy Act of 2008 (2008 Act) and to determine whether there will be resulting significant adverse effects of implementing GRP such that an Environmental Impact Statement (EIS) would be required. A more detailed discussion of the environmental review process will be discussed in Section 1.1.

This section provides a historical perspective of the Natural Resources Conservation Service's (NRCS) conservation activities on non-Federal, agricultural lands in the United States. From 1985 to the present, Farm Bill conservation titles have had an important role in food and agricultural policy. From the prevention of soil erosion, to wetland restoration, to water quality improvements, to wildlife and energy conservation efforts, NRCS conservation activities have helped to improve the quality of the environment for future generations.

The United States agricultural policy, programs, and institutions were originally formed in the 1930s during the response to the devastating effects of the Dust Bowl. In 1928, the United States Department of Agriculture (USDA) issued a circular entitled "Soil Erosion: A National Menace." In 1935, Congress passed the Soil Conservation and Domestic Allotment Act that established the Soil Conservation Service (SCS) as a permanent agency of the Federal Government. The new agency focused the soil conservation work on direct assistance to farmers. The creation of local soil conservation districts was established through model State legislation distributed by President Roosevelt in 1937. SCS and the local conservation districts cooperated to deliver technical assistance on such important environmental issues as soil erosion and water quality protection in nearly every county of the United States.

Over the years, Farm Bill conservation programs have been instrumental in helping protect, restore, and enhance the environment. In 1936 for example, Congress amended the Soil Conservation and Domestic Allotment Act to provide payments to farmers through the Agricultural Conservation Program (ACP) to shift acreage from surplus crops to soil-conserving legumes and grasses. In the 1985 Farm Bill, the Nation's largest conservation program, the Conservation Reserve Program (CRP), was created. The 1985 Farm Bill also contained the first highly erodible lands and wetland conservation compliance provisions. The 1990 Farm Bill created the Wetlands Reserve Program (WRP) and the Water Quality Incentives Program (WQIP) which focused on water quality protection as a primary objective of agricultural conservation programs. SCS became NRCS in 1994 as a result of a Federal agency reorganization act and to better reflect its evolving scope of duties and expanded role of helping to protect all natural resources, such as water, air, plants, and animals on private and tribal lands.

Other examples of the benefits of Farm Bill conservation programs can be seen in such programs as the Environmental Quality Incentives Program (EQIP) which consolidated ACP, WQIP, the Colorado River Basin Salinity Control Program, and the Great Plains Conservation Program

under the 1996 Farm Bill. The 1996 Farm Bill also provided programs to protect farm lands through the Farm and Ranch Lands Protection Program (FRPP) and the creation and enhancement of habitat for wildlife through the Wildlife Habitat Incentives Program (WHIP). The 2002 Act enacted environmental stewardship programs such as the Conservation Security Program (CSP) and programs to provide long term protection and restoration of grassland through GRP. In essence, NRCS' mission is to ensure the protection and restoration of our natural environment. The NRCS vision "Productive Lands - Healthy Environment," the mission statement of "Helping People Help the Land," and a recent campaign, "Conservation: Our Purpose and Our Passion" truly exemplify how conservation technical and financial assistance translates into environmental improvements and protection.

In order to accomplish conservation goals on private and other non-Federal lands, NRCS is authorized through Farm Bill legislation to use a broad range of programs to encourage the voluntary conservation of natural resources. Accordingly, Congress and USDA have recognized the importance of providing technical and financial assistance through conservation programs delivered at the State and local levels. National Farm Bill legislation establishes that financial and technical assistance is to be provided to the areas with the most pressing environmental resource concerns.

State and local conservationists play a pivotal role in accomplishing the NRCS vision of "Productive Lands - Healthy Environment." In each State, technical committees, comprised of representatives from Federal, State, local, and Tribal governments, as well as representatives of organizations knowledgeable about conservation and agricultural production issues and other interested individuals, advise and make recommendations to the NRCS State Conservationist on the implementation of NRCS administered programs. This includes the prioritization of resource concerns and other issues related to how and where financial assistance funds will be used to address environmental resource concerns in the States.

NRCS conservation planners prepare conservation plans in consultation with private landowners. Conservation plans are designed to address environmental resource concerns on private, non-Federal, or tribal lands. NRCS conservationists help individuals and communities take a comprehensive approach to planning the proper use and protection of natural resources on these lands through a nine-step planning process described in the NRCS National Planning Procedures Handbook (hereby incorporated by reference). As part of this conservation planning effort, individual environmental reviews called environmental evaluations (EE) are completed which inform the conservation planning effort and assist the Agency's compliance with NRCS regulations that implement the National Environmental Policy Act of 1969 (NEPA). The EE is a concurrent part of the planning process in which the potential long and short-term impacts of an action on people, their physical surroundings, and the natural environment are evaluated and alternative actions explored. The EEs and conservation plans are developed to assist the landowner in making decisions and implementing the conservation practices identified in the conservation plan.

Along with protecting grasslands under easements and rental contracts, USDA provides GRP financial assistance to implement Restoration Agreements, when required, that include NRCS' conservation practice standards that meet Agency specifications. These conservation practices are developed through a multi-disciplinary science-based process in order to maximize the success and minimize the risk of failure of the conservation practice. NRCS practice standards are established at the national level. A minimum level of acceptable quality for planning, designing, installing, operating, and maintaining a conservation practice is established.

Each conservation practice standard includes the definition and purposes of the practice, identification of the conditions in which the conservation practice applies, and the criteria supporting each purpose. When a conservation practice standard is developed or revised at the national level, NRCS publishes a notice in the *Federal Register* of the availability of the standard for review and comment for a period of not less than 30 days from the date of publication. Standards from the National Handbook of Conservation Practices and interim standards are used and implemented by States, as needed, and may be modified to include additional requirements to meet State or local needs. Because of wide variations in soils, climate, and topography, States can revise these national standards and develop specifications to add special provisions or provide additional details in the conservation practice standards. State laws and local ordinances or regulations may also dictate more stringent criteria; in no case, however, is the quality of the national conservation practice standard to be reduced.

NRCS conservation practices are normally implemented as part of a conservation management system (CMS) that consists of two or more conservation practices to maximize environmental benefit to the identified natural resource concerns. This is done not only to address the identified natural resource concern, but also to avoid or minimize potential adverse ancillary impacts identified through the NRCS conservation planning process. When NRCS provides financial assistance for a single practice, it is because adverse impacts are not anticipated or because the landowner is progressively implementing a plan.

NRCS provides technical and financial assistance to implement conservation practices and systems to improve or mitigate natural resource concerns and public health problems that may exist on private or non-Federal lands. Through programs like GRP, NRCS has been able to meet a primary purpose of NEPA as stated in Section 101 of the Act in that NRCS, "use(s) all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." NRCS accomplishes this through conservation plans and actions by providing information on environmental resource concerns and information on technical and financial assistance available to individuals, groups, tribes, communities, and other segments of the society, including those considered limited resource or socially disadvantaged.

1.1 Environmental Review Introduction

NEPA requires that Federal agencies "ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken (1500.1(b))." The NEPA process is "intended to help public officials make decisions that are based on an understanding of environmental consequences and taking actions that protect, restore, and enhance the environment (1500.1(c))." NEPA's purpose is "not to generate paperwork - even excellent paperwork - but to foster excellent action (1500.1(c))." NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail. The regulations that govern the implementation of NEPA for NRCS actions include those promulgated by the Council on Environmental Quality (CEQ) at 40 CFR Part 1500-1508 and the Agency's own specific regulations implementing NEPA at 7 CFR Part 650.

An environmental review under NEPA is required when there is a "Major Federal Action" that an agency is proposing to take. The CEQ and NRCS regulations implementing NEPA define "Major Federal Action" to include activities over which Federal agencies have control, including promulgation of regulations in which they exercise discretion. An agency may prepare either an EIS or an EA to evaluate the potential environmental impacts of a proposed Federal action. Typically, an EIS is prepared when it is anticipated that the proposed Federal action will have potentially significant or adverse environmental impacts to the quality of the human environment. An EA can also be prepared to aid in an agency's decisionmaking process when an EIS is not necessary or to assist with the preparation of an EIS when it is determined that one is necessary.

Decisions to be Made and Subject to Review Under NEPA

The proposed Federal actions being considered by NRCS are promulgating regulations to implement GRP, as authorized by the 2008 Act, 16 USC 3838n et seq., which amended Subtitle D, Chapter 2 of Title XII of the 1985 Food Security Act, 16 U.S.C. 3838n through 3838q. The result of this EA is to determine whether there will be significant adverse effects of implementing GRP such that an EIS would be required. Direct and indirect effects of the rule include implementation of the rule through site-specific actions. While impacts of every possible site-specific action is not analyzed in this EA, nor are the cumulative effects of every possible site-specific action, a reasonable representative range of the most likely site-specific actions have been considered.

The Secretary of Agriculture has delegated authority to implement GRP jointly to the Administrator, Farm Service Agency (FSA) and the Chief, NRCS. The interim final rule will be published by the Commodity Credit Corporation (CCC) of the USDA. Originally, GRP was authorized by the Farm Security and Rural Investment Act of 2002 (2002 Act), P.L. 107-171 Stat. 134 (May 13, 2002), and was amended by the 2008 Act, (P.L. 110-234) (May 22, 2008). NRCS has the lead responsibility on regulatory matters and technical issues, whereas FSA has the lead responsibility for financial activities. This remains unchanged in the 2008 Act.

Background to the Decisions to be Made

The 2008 Act resulted in changes to the program including a provision that mandates NRCS on behalf of the Secretary of Agriculture, within 90 days after the enactment of the 2008 Act, to promulgate regulations necessary to carry out these programs.

As the proposed action is rulemaking for a national program, the analysis herein is referred to as a Programmatic EA that evaluates the potential environmental impacts at a broad program scale. NRCS is utilizing this Programmatic EA to assist the Agency in determining whether promulgation of the interim final rule for implementation of GRP will significantly affect the quality of the human environment such that NRCS must prepare an EIS. In accordance with CEQ regulations at 40 CFR Part 1508.9, this Programmatic EA "provides sufficient evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact." In accordance with NRCS regulations that implement NEPA, this EA contains a brief discussion of the need for action, alternatives, a discussion of the anticipated environmental impacts, and a list of agencies and persons consulted (7 CFR Part 650.4(b)(2)).

NRCS has developed this Programmatic EA to evaluate the potential environmental effects of implementation of GRP as a national program. The analysis herein analyzes potential environmental effects in a broad geographic and temporal context and evaluates the rulemaking for national programs as a whole. Consequently, the scope and range of potential environmental impacts are more qualitative in nature than those in any subsequent site-specific analysis produced by NRCS State or field offices. Accordingly, the proposed Federal action involves no site-specific or ground-disturbing actions that will occur as an immediate or direct result of the proposed national rulemaking.

Other Federal actions that may occur or may be taken to further implement GRP are subject to environmental review under NRCS regulations that implement NEPA. Accordingly, actions that may be taken by NRCS State and field offices to further implement GRP will be able to incorporate, by reference, the general and broad scale analysis from this Programmatic EA into more site-specific level analyses. Any subsequent analyses that are prepared to implement GRP at the State or field level will be meeting NEPA's intent by focusing in on the issues/concerns pertinent to that site-specific action.

Per NRCS regulations that implement NEPA at 7 CFR Part 650, site-specific EEs are developed as part of the conservation planning process. The EE evaluates conservation planning options developed to address and mitigate potential environmental resource concerns that may exist on the property or conservation management unit. The EE also determines if environmental resources exist on the property and if those resources have the potential to be affected by conservation practices outlined in the conservation plan. The resources that are evaluated in the EE include, but are not limited to wetlands; floodplains; sole source aquifers; threatened and endangered species and their critical habitat; cultural resources; coastal zones; riparian areas;

scenic beauty; socioeconomic resources; and environmental justice issues. NRCS guidance on the site-specific EE process and definitions of protected resources can be found in the NRCS National Environmental Compliance Handbook (USDA, 2003).

1.2 The New 2008 GRP Statutory Requirements

GRP is a voluntary program for the purpose of "assisting landowners and operators in protecting grazing uses and related conservation values by restoring and conserving eligible lands through rental contracts, easements, and restoration agreements," as amended by the 2008 Act. This represents a change in the GRP focus from the 2002 Act which specified the "protection, conservation, and restoration of grassland resources on private lands." The program continues to emphasize support for working grazing operations, as well as enhancement of grassland functions and values.

The 2008 Act specifies an enrollment cap of 1.22 million acres of eligible land during fiscal years 2009 through 1012. This represents an acre reduction from the 2002 Act which had a 2 million acre statutory cap. The GRP authorizing language in the original 2002 Act provided for up to $254 million in program funding through 2008. Funding levels have currently not been specified for GRP, as appropriations under the 2008 Act have not been made. A summary of GRP appropriations, acres, and obligations for fiscal years (FY) 2003-2008 is provided in the following table.

GRP Summary 2003-2008			
TOTAL GRP Appropriation for 2003-2008 (Easements & Rental Contracts)			$ 254,000,000
GRP Closed Easements 2003-2008			**Number**
	Permanent Easements		222
	30 Year Easement		22
			Acres
	Permanent Easements		105,563
	30 Year Easement		9,785
			Values Rounded
	Permanent Easements		$ 46,000,000
	30 Year Easement		$ 4,000,000
GRP Rental Agreements 2003-2008	**Contracts (Numbers)**	10-Year Agreement	1,766
		15-Year Agreement	320
		20-Year Agreement	259
		30-Year Agreement	287
		Total	**2,632**
	Acres	10-Year Agreement	312,625
		15-Year Agreement	80,117
		20-Year Agreement	79,308
		30-Year Agreement	89,973
		Total	**562,023**
	Obligations ($)	10-Year Agreement	$37,373,936
		15-Year Agreement	$12,480,565
		20-Year Agreement	$15,570,222
		30-Year Agreement	$25,324,789
		Total	**$90,749,512**

Enrollment Options

Under GRP, as amended in the 2008 Act, the Secretary is authorized to enroll eligible lands in the program through:

- A 10-year, 15-year, or 20-year rental contract;
- A permanent easement; or
- A State that imposes a maximum duration allowed under the law of that State.

The 2008 Act amended the 2002 Act by removing the 30-year rental agreement and 30-year easement enrollment option. Also, the 2008 Act changed the term 'rental agreements' to 'rental contracts.'

As amended in the 2008 Act, the total amount of funds expended under GRP to acquire rental contracts and easements has a target of 40 percent for rental contracts and 60 percent for easements.

Restoration Plans and Grazing Management Plans

Restoration agreements continue to be authorized in the 2008 Act for use in conjunction with easements and rental agreements. NRCS, in consultation with the program participant and through the conservation planning process, determines if the grassland resources are adequate to meet the participant's objectives and the purposes of the program, or if a restoration agreement is needed. Financial assistance is available through GRP, when needed, to implement land management, vegetative, and/or structural conservation practices and measures that would restore or improve the grassland ecological functions and values on native and naturalized plant communities.

The restoration agreement describes the respective duties of the owner/operator and the Secretary, including the Federal share of restoration payments and technical assistance.

The 2008 Act has been amended to include the specific requirement of a grazing management plan, as approved by the Secretary, in order for lands to be eligible for enrollment in GRP. These grazing management plans will be incorporated in an approved conservation plan that is currently being required for all lands enrolled in GRP. Grazing management plans may be modified upon mutual agreement of the parties when necessary. Each grazing management plan will follow specifications outlined in the conservation practice Prescribed Grazing (528).

Enrollment Priority and Limits

An enrollment priority has been established in the 2008 Act that requires the Secretary to place a priority for enrollment land previously enrolled in CRP providing the land is eligible, as defined,

and the Secretary determines that the land is of high ecological value and under significant threat of conversion to uses other than grazing. There is, however, a limit to this enrollment priority under the 2008 Act that specifies the number of acres shall not exceed 10 percent of the total number of acres enrolled in GRP in each calendar year.

Eligible Lands

GRP is available on privately owned lands, which include private and tribal lands. Publicly-owned land is not eligible.

The 2008 Act expanded the land eligibility criteria from the 2002 Act to include land that has been historically dominated by grassland, forbs, or shrubland when it contains historical or archaeological resources and would address issues raised by State, regional, and national conservation priorities. Also, the 2008 Act amended the original 2002 Act by removing the minimum eligible acreage enrollment of 40 contiguous acres.

Eligible lands are currently defined by the 2008 Act as private or tribal lands that:

- Is grassland, land that contains forbs, or shrubland (including improved rangeland and pastureland) for which grazing is the predominant use;
- Is located in an area that has been historically dominated by grassland, forbs, or shrubland, and the land:
    - Could provide habitat for animal or plant populations of significant ecological value if the land:
        - Is retained in its current use
        - Is restored to a natural condition
    - Contains historical or archaeological resources
    - Would address issues raised by State, regional, and national conservation priorities
- Is incidental to land described above, if the incidental land is determined by the Secretary to be necessary for the efficient administration of a rental contract or easement under the program.

Permissible Activities and Prohibitions

The 2008 Act was amended to include ‘Prohibited’ as well as ‘Permissible’ activities. The Secretary has the discretion to adopt additional provisions to carry out or facilitate the purposes and administration of the program. If additional provisions are adopted, they will be included in the final GRP rule.

In the 2008 Act, Congress required that easements and rental contracts allow for the following activities:

- Common grazing practices, including maintenance and necessary cultural practices, on the land in a manner that is consistent with maintaining the viability of grassland, forbs, and shrub species appropriate to that locality;
- Haying, mowing, or harvesting for seed production, subject to appropriate restrictions during the nesting season for birds in the local area that are in significant decline or are conserved in accordance with Federal or State law, as determined by the State Conservationist;
- Fire suppression, rehabilitation, and construction of fire breaks; and
- Grazing related activities, such as fencing and livestock watering.

Prohibitions include:

- The production of crops (other than hay), fruit trees, vineyards, or any other agricultural commodity that is inconsistent with maintaining grazing land; and
- The conduct of any other activity that would be inconsistent with maintaining grazing land enrolled in the program except as permitted under a restoration plan.

NRCS is requesting comment on (1) whether wind energy generation activities are compatible with the grazing uses and related conservation values of the GRP program and (2) the nature of potential impacts on grazing uses and related conservation values resulting from wind energy generating activities that disturb the surface of the land. Although NRCS is supportive of wind power generation for on-farm use on GRP lands, the opportunity to place generating stations on easement or contract acres is not a guaranteed right. The siting of such facilities for on-farm energy generation must be consistent with the protection of the grazing uses and related conservation values promoted by GRP. In addition, authorization may only be provided after NRCS conducts a site-specific evaluation to determine that there are no negative impacts on threatened, endangered or at-risk species, migratory wildlife, or related natural resources, cultural resources or the human environment. In addition, NRCS will follow guidelines being developed by the U.S. Fish and Wildlife Service (USFWS) entitled "Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines" and will authorize wind power facilities only when the footprint of the facility would have a minimal impact on the nature of the grazing lands and other conservation values obtained through the contract or easement. These evaluation considerations will be incorporated into the environmental analyses that NRCS conducts pursuant to its NEPA compliance responsibilities.

Evaluation and Ranking of Applications

As was the case with GRP under the 2002 Act, the Secretary shall establish criteria to evaluate and rank applications for rental contracts and easements. USDA will provide to State offices broad national guidelines for establishing State-specific project selection criteria. These will be outlined in the Interim and Final GRP rules. The 2008 Act specifies that in establishing the criteria, the Secretary will emphasize support for:

- Grazing operations;
- Plant and animal biodiversity; and
- Grassland, land that contains forbs, and shrubland under the greatest threat of conversion to uses other than grazing.

The 2008 Act elevates support for grazing operations while maintaining support for plant and animal biodiversity and grasslands under greatest threat of conversion to uses other than grazing.

Payments

Compensation for easements under the 2008 Act, the Secretary will make easement payments in an amount not to exceed the fair market value of the land less the grazing value of the land encumbered by the easement as determined by an appraisal. In determining the compensation for an easement, the Secretary will pay the lowest of:

- The fair market value of the land encumbered by the easement, as determined by the Secretary;
- The amount corresponding to a geographical cap, as determined by the Secretary in regulations; or
- The offer made by the landowner.

Compensation for rental contracts allows the participant to receive annual payments from the Secretary during the term of the contract in an amount not to exceed 75 percent of the grazing value of the land covered by the contract. A payment limitation was added in the 2008 Act that specifies that a payment amount made under one or more rental contracts to a person may not exceed, in the aggregate, $50,000 per year.

Restoration agreements are only authorized to be used in conjunction with easements and rental agreements. The 2008 Act specifies that the Secretary shall make payments to an owner/operator under a restoration agreement of not more than 50 percent (in the 2002 Act the cost share was 75 percent) of the costs of carrying out measures and practices necessary to restore functions and values of that land. Payments made under one or more restoration

agreements to a person or legal entity, directly or indirectly, may not exceed, in the aggregate, $50,000 per year.

Several changes were made regarding payments and limitations in the 2008 Act from original language in the 2002 Act. As stated above, there are now separate payment limitations for restoration agreements and rental contracts, a defined fair-market value determination process for easement compensation, and a reduction of the maximum allowable cost-share amount to 50 percent for practices implemented through restoration agreements.

Delegation of Duties

The 2008 Act includes provisions whereby the Secretary can choose to delegate duties under the program by transferring title of ownership of an easement to an eligible entity to hold and enforce, or by entering into a cooperative agreement. The rule will provide specific regulations relevant to cooperative agreements, eligible entities, and additional requirements.

2.0 NEED FOR ACTION

The proposed Federal action being considered by NRCS is the promulgation of regulations to implement GRP as required by the 2008 Act. As the scope of the proposed action is for a national program, the analysis herein is referred to as a Programmatic EA and evaluates the potential environmental impacts at a broad program scale. NRCS is utilizing this Programmatic EA to assist the Agency in determining whether promulgation of the interim final rule and implementation of GRP rental contracts, easements, and conservation activities associated with restoration agreements, as appropriate, will significantly affect the quality of the human environment, such that NRCS must prepare an EIS.

As stated in the 2008 Act, the underlying need for the reauthorization of GRP is to assist landowners and operators in protecting grazing uses and related conservation values by restoring and conserving eligible land through rental contracts, easements, and restoration agreements on private or tribal, non-Federal lands. The program continues to emphasize support for grazing operations, as well as enhancement of grassland functions and values (as described in more detail in Section 4.2) through the use of conservation activities associated with restoration agreements, as appropriate.

For the purposes of the program, eligible lands can be enrolled through the use of:

1) A 10-year, 15-year, or 20-year rental contract;
2) A permanent easement; or
3) A State that imposes a maximum duration for easements, an easement for the maximum duration allowed under the law of that State.

NRCS has been charged with implementing GRP as authorized and funded by Congress to meet this need.

In accordance with CEQ regulations,[1] this Programmatic EA is "a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact." In accordance with NRCS regulations that implement NEPA,[2] this EA contains the following information:

- A brief discussion of the need for action;
- Alternatives;
- A discussion of the anticipated environmental impacts; and
- A list of agencies and persons consulted.

Actions that may be taken by NRCS at the State and/or local levels to further implement GRP will be able to tier to or incorporate by reference the general and broad scale analysis from this national programmatic EA into more site-specific level analyses. Any subsequent analyses that are prepared to implement GRP at the State and/or local levels will meet NEPA's intent by focusing in on the issues/concerns pertinent to that site-specific action.

Appendix A provides a list of the most commonly used grassland restoration-related conservation practices that have been implemented under GRP from 2003-2008.

3.0 ALTERNATIVES AND SCOPE OF ANALYSIS

3.1 Alternatives

According to the 2008 Farm Bill legislation, NRCS is to promulgate regulations for the reauthorization and implementation of GRP. Accordingly, alternatives have been developed that address how GRP may or may not be implemented. The alternatives characterize the aspects of GRP in which the Agency has discretion to address and implement initiatives that Congress has initially outlined to be a part of the program for GRP. Under NEPA, the alternatives analyzed help to inform the decisionmaker and the public about the course of action the Agency has considered in arriving at a particular decision. The alternatives considered, excluding the No-Action Alternative, must meet the purpose and need for the action. The No-Action Alternative is required under NEPA to be evaluated to provide the baseline upon which to evaluate the relative merits and disadvantages of the action alternatives carried forward for analysis.

[1] 40 CFR Part 1508.9

[2] 7 CFR Part 650.4(b)(2)

3.1.1 Alternative 1 – No Action – No Implementation of GRP

The No-Action Alternative involves not proceeding with the implementation of GRP as required by Congress. Although this alternative is not feasible to consider because Congress has required NRCS to promulgate regulations for GRP, this alternative provides a baseline against which to compare the effects of the other alternatives considered. For GRP, this No-Action Alternative would mean that NRCS would not provide focused resources (financial and technical) to landowners/operators to protect grazing uses and related conservation values through rental contracts, easements, and restoration agreements on private or tribal, non-Federal grasslands.

3.1.2 Alternative 2 – Agency Preferred Alternative – Implement 2008 GRP Program Requirements

Alternative 2 involves implementing GRP under the Interim Final Rule developed by NRCS and according to the statutory requirements that Congress has placed on the program. Many of the statutory requirements are described in Section 1.2. NRCS will promulgate the Interim Final Rule at the national level to ensure consistency of program implementation across the Nation. However, implementation of GRP will occur at the State and local levels. Decisions regarding the ranking of applications, contract and easement payments, local priorities, and delegations of duties will still be made at the State level.

All GRP rental contracts and easements will be accompanied by a conservation plan that will include a grazing management plan for individual enrollees. Conservation practices implemented as a result of restoration agreements, as appropriate, will be planned, evaluated, and implemented for each site as a result of field conservationist's application of the NRCS conservation planning process, EE, and adherence to the applicable conservation practice standards and specifications. Each grazing management plan will follow specifications outlined in the conservation practice Prescribed Grazing (528).

Conservation planning is a natural resource problem-solving and management process. The process integrates economic, social (including cultural resources), and ecological considerations to meet private and public needs. This approach, which emphasizes desired future condition, helps improve natural resource management, minimizes conflict, and addresses problems and opportunities. Conservation planning deals with complete systems of conservation practices, rather than just parts of systems. The expected physical effects of conservation systems and practices are assessed in the context of ecological, economic, and social considerations as documented locally in the Field Office Technical Guide (FOTG). The expected impacts of those effects on natural resource quality, economic needs, and social objectives are then used to help develop and evaluate individual management alternatives on each farm/ranch.

As a concurrent part of the conservation planning process, NRCS conducts an on-site EE in which the potential long and short-term impacts of an action on people, their physical or social surroundings, and on natural systems are evaluated, whereby alternative actions are explored, as

necessary, to attain the desired outcome and goals of the landowner/operator for a particular land unit.

Under Alternative 2, implementation of GRP rental contracts, easements, and associated conservation practices would provide indirect long term beneficial impacts to environmental resources with potentially only minor and temporary negative environmental impacts when implementing those practices that involve ground disturbance. Overall, there would be a long term beneficial impact for the majority of the natural and social/cultural resource concerns.

3.2 Scope of Analysis

Public Participation and Scoping

In fulfilling the spirit and intent of NEPA "to encourage and facilitate public involvement in decisions which affect the quality of the human environment," in 2005, USDA held 52 public meetings throughout the United States on the future of Farm Bill policies and legislation. The comments provided on the programs and legislation has helped the Agency focus on the public's concerns and issues. Consequently, NRCS has been able to use these public meetings to identify what are and what are not the real issues to be analyzed in this Programmatic EA (40 CFR Part 1500.5(d)). The issues raised by the public have helped NRCS fulfill one of NEPA's goals which is to have environmental analyses evaluate "environmental issues deserving of study (and to) deemphasize insignificant issues," thereby "making the NEPA process more useful to decisionmakers and the public (40 CFR Part 1500.4(g) and 1500.2(b))."

Issues raised by the public regarding the implementation of GRP that were considered in the formulation of GRP program alternatives are incorporated by reference from the USDA website.[3] Following are a few of the summarized issues that were presented:

- Urban sprawl was noted by many to be one of the biggest concerns facing American agriculture. General support was expressed for addressing the urbanization and fragmentation of both forest and farm lands.
- Some comments stated that the Secretary should consider reauthorizing the Farm Viability Program that was included in the 2002 Act and bolstering the health of individual farms through diversifying operations. Comments suggested that this would result in loss of fewer farms if each farm has a stronger portfolio.
- There was general support for continuing FRPP and GRP at increased program levels.

[3] Public Comment Summary for FRPP (includes GRP) (http://www.usda.gov/documents/FARM_AND_RANCH_LANDS_PRESERVATION.pdf)

- Some comments felt that easement programs need to be targeted to east and west coast farmland areas that are under considerable development pressure, such as the Delmarva Peninsula or areas near Federal lands.
- Some comments expressed a desire to see the GRP statute amended with greater funding, additional resources, and a greater allocation to the West.
- A few people commented that an overall agricultural easement program should be developed as a part of the new Farm Bill. This program will allow farmers to agree to an agriculture easement to satisfy increased loan obligations brought about by maturing shared appreciation agreements.

Scope of Analysis

This Programmatic EA analyzes the implementation of GRP as required by Congress. Although this Programmatic EA focuses on broad-scale analyses of potential environmental impacts of implementing the program along with a No-Action Alternative, it also includes a general discussion of the effects of conservation practices typically associated with the program. In the case of GRP, this includes those practices that are associated with restoration agreements that accompany rental contracts and easements and grazing management plans, as required by the 2008 Act.

There are no direct environmental impacts to the quality of the human environment from the proposed action of national rulemaking. However, there is anticipated to be indirect and cumulative beneficial effects associated with the application of GRP implementation in general. There is also the potential for direct socioeconomic impacts concerning funding allocations to States for designated participants, including limited resource, beginning, and socially disadvantaged producers.

For this Programmatic EA, potential environmental effects are analyzed according to soil, water, air quality, plants, animals (including wildlife and domestic livestock), and human resources (SWAPA+H). A complete list of NRCS SWAPA+H national resource concerns considered for the analysis can be found in Appendix B. Additionally, special environmental concerns (SEC) identified in NRCS regulations (7 CFR Part 650), environmental laws, and executive orders are included in the SWAPA+H analysis, as appropriate. Further details relevant to SECs are in Section 4.1.

3.2.1 Approach to Analysis

The Programmatic EA herein provides general information from a national perspective on the potential environmental impacts associated with the implementation of GRP and the application of conservation practices normally associated with restoration plans and grazing management plans, as required by the 2008 Act. A short resource characterization of the environmental

baseline for each environmental resource concern analyzed is presented first, followed by a broad analysis of anticipated impacts.

Summary of Potential NRCS Actions to be Implemented Through GRP

As required by the 2008 Act, the implementation of GRP involves primarily the purchase of easements and rental contract applications on private or tribal, non-Federal lands. The enrollment limit is an additional 1.2 million acres through 2012 beyond the original limit of 2 million acres under the 2002 Act. However, GRP also involves the implementation of conservation practices outlined in restoration agreements, as applicable, using NRCS technical and financial assistance, as well as a grazing management plan for each contract (as outlined in Section 1.2 and required by the 2008 Act) developed as part of an approved conservation plan.

The grazing management plan will follow the conservation practice Prescribed Grazing (528) standard and contains the items outlined in the plans and specifications section that includes:

- Goals and objectives
- Resource inventory
- Forage-animal balance
- Grazing Plan
- Contingency plan
- Monitoring plan

This Programmatic EA presents information in a quantitative manner where possible. Otherwise, qualitative best professional judgment and assessment has been provided by the interdisciplinary team concerning potential impacts to environmental resources based on a review of the best available relevant scientific studies, analyses, and consideration of the permanence of an impact; the potential for natural attenuation of an impact; the uniqueness or replaceable nature of the resource; the abundance or scarcity of the resource; and the potential mitigation measures that can offset or reduce an anticipated impact. Accordingly, this analysis characterizes impacts in broad-scale terms consistent with national rulemaking and NEPA regulations and guidance. In addition, consistent with CEQ and NRCS regulations implementing NEPA, NRCS will undertake additional environmental review at subsequent stages of program implementation and associated conservation planning.

3.2.2 Adaptive Management

The NRCS conservation planning process employs the concept of adaptive management when conservation practices are implemented (these include management practices such as grazing management plans required for those participants enrolled in GRP, as well as restoration agreements, when needed). Adaptive management is undertaken by conducting site visits and

providing follow up guidance and assistance to landowners, as necessary, during the terms of GRP rental contracts and easements. Conservation practices implemented through restoration agreements must be maintained through appropriate operation and maintenance (O&M) established timeframes to ensure their effectiveness.

NRCS uses "quality criteria" as established, for all formally recognized "resource concerns" that provide minimum threshold levels of sustainability by which to measure effectiveness of conservation practices implemented by landowners/operators according to the conservation plan and contract. As part of the conservation plan followup process, outcomes are evaluated against NRCS quality criteria. Appendix B provides a list of NRCS identified resource concerns and quality criteria. If necessary, additional technical assistance is provided to enrollees, and/or financial assistance is provided by adding additional conservation practices, as needed, to attain quality criteria and to provide mitigation, as necessary, for effects that were unforeseen during the conservation planning process.

Adaptive management is important for financial assistance under all programs in the 2008 Act for conservation planning and conservation practice implementation. The programmatic nature of NEPA documentation, such as this Programmatic EA, allows for the flexibility necessary for a nationwide program to simultaneously maintain compliance, implement conservation practices, and streamline documentation. Project performance is ensured through site-specific EEs and by enabling corrective actions or modifications as necessary.

3.2.3 Incorporation by Reference Used in this Analysis

Section 4 presents (to the extent possible) summarized information that is incorporated by reference from various literature, journals, studies, and other scientific analyses to support environmental effect determinations as allowed by CEQ regulations that implement NEPA.[4] For example, currently available baseline information from other environmental analyses, websites, studies, or journals has been summarized and utilized in this Programmatic EA. This baseline information presents a national characterization of environmental resources applicable to the assessment of environmental impacts associated with national rulemaking for GRP. Although an environmental baseline (affected environment) is not required for a Programmatic EA, it helps to set the evaluation for potential environmental impacts and has, therefore, been incorporated into this Programmatic EA where possible.

NRCS has used issues and concerns raised through Farm Bill policy public meetings, held in 2005, to help identify and frame the issues to be analyzed in detail and of concern to the public (outlined in Section 3.2).

[4] 40 CFR Part 1502.21

4.0 ANTICIPATED ENVIRONMENTAL EFFECTS OF THE ALTERNATIVES

4.1 Analyzing Effects at the Programmatic vs. Site-Specific Levels

This section is organized so that the anticipated broad concerns being addressed coincide with NRCS' suggested format for the documentation of the EE process used in conjunction with established NRCS conservation planning protocols as described in the National Planning Procedures Handbook, the National Environmental Compliance Handbook, and National Environmental Evaluation Worksheet (NRCS CPA-52). The intent of this Programmatic EA is not to address the site-specific impacts, but overall national program application.

NRCS will address site-specific impacts through established NRCS conservation planning protocols that include completion of the EE conducted for each individual enrollee. As previously stated in Section 1.0, this process integrates economic, social, and ecological considerations to meet private and public needs. This approach, which emphasizes desired future conditions, helps to improve natural resource management, minimize conflict, and address problems and opportunities.

Alternative actions in the form of individual and groups of conservation practices are formulated during the conservation planning process to address identified resource concerns and take advantage of environmental opportunities. Conservation practices for each GRP enrollee are implemented under a conservation plan and a restoration agreement, as necessary, that usually involves a system of practices to address multiple resource concerns referred to as a CMS. Indirect effects of implementing conservation practices with NRCS technical assistance, alone or in combination with financial assistance through GRP, are anticipated to occur under the preferred alternative (Alternative 2).

Conservation Practice Standards applicable to the planning and implementation of each practice are found in the National Handbook on Conservation Practices Standards[5] and Section IV of the electronic Field Office Technical Guide[6] for each State. Each conservation practice consists of a conservation practice standard which prescribes the minimum materials and workmanship required and a specification which prescribes how the practice is to be specifically installed.

NRCS has also summarized general effects of each conservation practice upon natural resource concerns in the Conservation Practices Physical Effects (CPPE).[7] Network Effects Diagrams have also been developed for each of these conservation practices that depict the chain of natural resource effects resulting from practice implementation. Network Effects Diagrams for all of the

[5] National Handbook of Conservation Practices (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[6] eFOTG (http://www.nrcs.usda.gov/technical/efotg/index.html)

[7] CPPE (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

conservation practices are available on the NRCS website[8] and are hereby incorporated by reference. The practice standards, CPPE information, and Network Effects Diagrams are incorporated by reference into the following discussion of impacts for each alternative.

The NRCS site-specific planning process must be completed before NRCS will provide Federal cost share under the program. The complete list of NRCS soil, water, air, plants, and human (SWAPA+H) national resource concerns and their potential effects considered for analysis can be found in Appendix B.

In addition to NRCS' list of resource concerns, SECs identified in NRCS regulations (7CFR § 650), environmental laws, and executive orders are considered as part of this Programmatic EA. The impacts to the SECs are directly addressed in the conservation planning process. This Programmatic EA is structured to include the SEC's within NRCS' general SWAPA+H categories (soil, water, air, plants, animals + human considerations). The SEC's have been incorporated into the analysis in the following format:

Soil: Prime and Unique Farmlands

Water: Clean Water Act/ Waters of the U.S.
Coastal Zone Management Areas
Floodplain Management
Riparian Area
Wetlands
Wild & Scenic Rivers

Air: Clean Air Act

Plants and Animals (Biological):
Endangered & Threatened Species
Essential Fish Habitat
Invasive Species
Migratory Birds/ Bald & Golden Eagles
Natural Areas
Riparian Area
Coral Reefs

Human: Cultural Resources
Environmental Justice
Scenic Beauty

NRCS policy (incorporated here by reference[9]) requires that NRCS conservation planners must minimize adverse impacts to environmental resources when providing technical and financial assistance. As such, the conservation planning process is inherently designed to implement conservation practices that address, improve, and mitigate for environmental resources concerns. The overall effects of implementing practices under a conservation plan should result in an overall benefit to the environment.

[8] Network Diagrams (http://www.nrcs.usda.gov/programs/ENV_Assess)

[9] NRCS General Manual Title 190 Part 410.3 (http://directives.sc.egov.usda.gov/viewerFS.aspx?id=666)

4.2 Grasslands and Land Use Conversions

Use of the Term Grassland: The term grassland is defined in the 2008 Act as land on which the vegetation is dominated by grasses, grass-like plants, shrubs, and forbs. The definition of grassland, as used in the context of the 2008 Act, includes shrubland, land that contains forbs, improved pastureland, and improved rangeland for which grazing is the predominant use.

Grasslands vary greatly in size, plant community composition and structure, habitat, and soils depending on local geography, geology, landscape, climatic features, and a multitude of other variables. Healthy grassland ecosystems inherently provide and/or sustain important landscape functions and values. Functions and values is a phrase used to describe the normal and specific contributions grasslands make to the overall condition of the landscape ecosystem and the desired qualities of the landscape that guide or influence attitude and behavior toward that landscape. Grasslands perform a variety of ecosystem functions as a result of their physical, chemical, and biological attributes, and they range in a hierarchy from simple to complex. For example, healthy grasslands provide ecological benefits such as nutrient cycling, storage of atmospheric carbon, and hydrologic cycling. Healthy grasslands also contribute to ecological values associated with wildlife habitat conservation, biodiversity, and aesthetics. In addition, they continue to provide economic value to agricultural enterprises by supporting the livestock industry, as well as offering diverse recreational opportunities.[10]

[10] Connor, Seidl, VanTassell, and Wilkins, "United State Grasslands and Related Resources: An economic and Biological Trends Assessment."

Healthy grasslands provide a variety of functions and values which include, but are not be limited to the following:

- Providing diverse wildlife habitat for game, non-game, and sensitive species
- Ensuring a clean water source for communities
- Supporting enhanced water quality for wildlife and recreational opportunities
- Contributing to enhancement of carbon sequestration
- Supporting diverse recreational opportunities
- Supporting landscapes that are aesthetically pleasing and improves quality of life for nearby residents
- Protecting soil from wind and water erosion
- Providing forage production for grazing and browsing animals, both domestic and wild
- Enhancing groundwater recharge
- Providing open space and improved quality of life to landowner and the community
- Supporting and enhancing clean air
- Building soil organic matter
- Sustaining and enhancing biodiversity of plants and animals and ecological functions
- Providing support to rural communities through farm/ranch diversification

Resource Characterization and Baseline Environment

The 2008 Act emphasizes the purpose of GRP as protecting grazing uses and related conservation values of grasslands through the restoration and conservation of eligible lands. Ranking and prioritization of applications addresses eligible lands under greatest threat of conversion and potential loss of grasslands. Priority is given to expiring CRP contracts that are of high ecological value and under the threat of conversion to uses other than livestock grazing. Restoration is also an emphasis. The ecological significance, recognition of grassland values, and the need to protect existing grazing lands under threat of conversion is the basis for GRP as a conservation program within the 2008 Act.

The Nation's privately owned lands constitute a tremendous resource that yields food and fiber as well as the livelihood and recreation for private land users. About 71 percent of the 1.9 billion acres across the contiguous 48 States is held as non-Federal, rural land uses -- nearly 1.4 billion acres. Non-Federal rural lands are predominantly forest land (406 million acres), rangeland (405 million acres), and cropland (368 million acres).

Table 4-1 Major Agricultural and Other Land Uses in the U.S.

Cropland	368 million acres
Pastureland	**117 million acres**
Rangeland	**405 million acres**
Hayland	Included in cropland
Forest land	406 Million acres
Other lands (homesteads, feedlots, etc.)	**82 million acres***

Includes 31.5 million acres under perennial vegetative cover in CRP as of 2003.

Source: USDA-NRCS 2003 National Resources Inventory[11]

Today, pastureland and rangeland combined comprise a total of over 500 million acres of the land use in the United States. Also, as Table 4-1 indicates, there are currently 31.5 million acres of land under perennial vegetative cover in CRP. In 1999, NRCS identified approximately 280 million acres of rangeland and 75 million acres of pastureland nationwide that were in need of conservation treatment to address resource concerns that degraded their quality and long term productivity. As such, there is a strong need for environmental conservation practices to be applied to help address the resource problems. The GRP enrollment limit under the current 2008 Act adds an additional 1.2 million acres through 2012 beyond the original limit of 2 million acres under the 2002 Act.

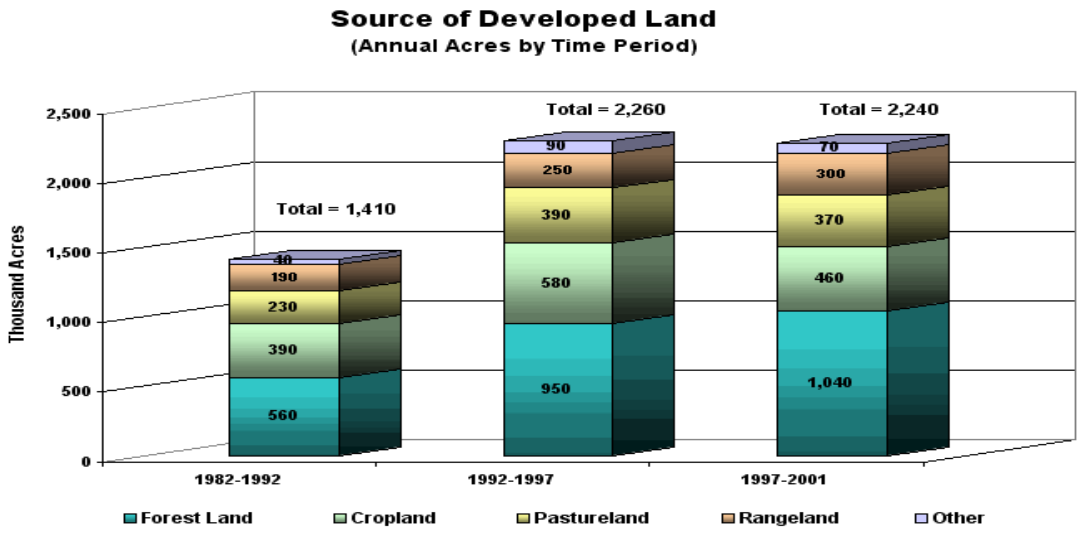
The conversion of agricultural lands to urban development and other uses has also been an issue of concern in the United States. Lands that are converted to urban development represent, for all intents and purposes, an irreplaceable loss of the potential productive uses of that land. Urban development leads to increased resource concerns from pollutants in storm water runoff to increased vehicular use and resulting greenhouse gas (GHG) emissions. Approximately 58 percent of America's county governments are seriously concerned over the loss of farmland due to expected growth in the future.[12]

During the period of two decades between 1982 and 2003, non-Federal acreage devoted to grazing uses declined from 611 million acres to 576 million acres, a decrease of over 5 percent. During the 6-year period between 1997 and 2003, the net decline in grazing land acreage was about one percent or a little over one million acres per year. Land use is surprisingly dynamic, with annual shifts in and out of different uses. Examining net change in land use reveals general trends, but masks the real extent of land use change over time. In agriculture, there are frequent shifts in the use of land among cropland, pastureland, rangeland, and forest land. Each time land

[11] http://www.nrcs.usda.gov/technical/NRI/nri03landuse-mrb.html

[12] Maintaining Farm and Forest Lands on Rapidly Growing Areas, p.4

changes use, it may affect erosion potential, contiguity of habitat, or hydrologic features of the landscape. As shown in the graph below, between 1997 and 2001, almost 9 million acres were developed of which 46 percent came from forest land, 20 percent from cropland, 16 percent from pastureland, and 18 percent from rangeland/other lands (2003 NRCS NRI).

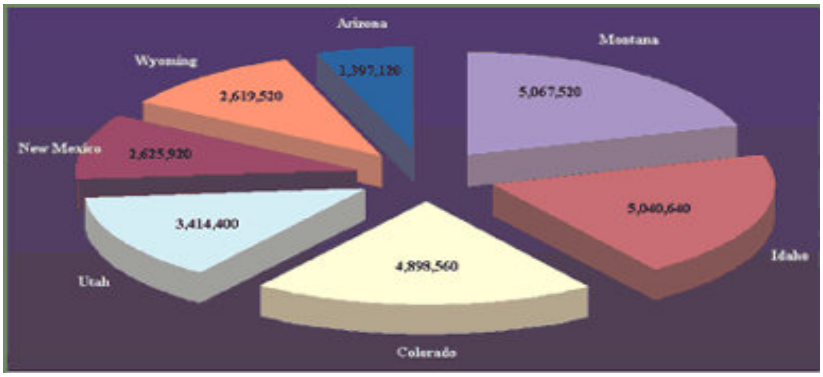


Urban development leads to increased pollution concerns from pollutants in storm water runoff to increased vehicular use and resulting GHG emissions. Grasslands provide clean air, carbon sequestration, and climate change buffering; flood protection; wildlife habitat; and recreation and aesthetic enjoyment. Healthy grasslands are also vital to clean and abundant supplies of water.

The American Farmland Trust recently conducted an analysis of the threats to prime ranchland due to development in Idaho, Montana, Wyoming, Utah, Colorado, Arizona, and New Mexico from 2000-2020 and is summarized in Figure 4-1.[13] These strategic at risk ranchlands are the most vulnerable to low-density residential development by the year 2020. These kinds of working agriculture lands are critical to maintaining local and regional agricultural economies, plant and wildlife habitat, and open space.

[13] www.farmland.org/resources/rockymtn/default.asp

Figure 4-1 Acres of Strategic Ranchlands at Risk in the Rocky Mountain West, 2000-2020



As discussed in Section 1.2, the 2008 Act requires the Secretary to place a priority for enrollment into GRP land previously enrolled in CRP providing the land is eligible, as defined, and the Secretary determines that the land is of high ecological value and under significant threat of conversion to uses other than grazing. The limit to this enrollment priority under the 2008 Act specifies the number of acres shall not exceed 10 percent of the total number of acres enrolled in GRP in each calendar year.

CRP continues to be a popular conservation program, and lands have offered many environmental and conservation benefits as outlined in the 2007 CRP annual report "CRP Enrollment Statistics and Program Summary."[14] There were more than 36 million acres under contract in FY 2007. However, current record crop prices are encouraging an interest in expanding crop acreages. When comparing current crop prices and current CRP rental rates, a large proportion of CRP land is likely to be taken out of the program as contracts expire in order to take advantage of higher crop returns. This will result in a loss of many of the environmental services these lands have provided over the years. GRP offers the opportunity to mitigate a small number of potential CRP conversions that are expected to accompany the large number of CRP contract expirations projected through 2012.

4.2.1 Alternative 1 – No Action – No Implementation of GRP

If GRP were not implemented, there would be a reduced ability to encourage the protection of grasslands for grazing uses and related conservation values. Although the enrollment potential for GRP is not high enough to capture a significant number of acres of grassland threatened with conversion or in need of some type of restoration, as discussed in Section 4.2, GRP does provide the ability and flexibility for States to prioritize those grasslands in greatest need of protection, whether they are working farms/ranches currently or have been protected under CRP and may now be converted to cropland. Since the majority of CRP acres were initially enrolled into the

[14] www.fsa.usda.gov/Internet/FSA_File/annual_consv_2007.pdf

program due to their environmental sensitivity, there are significant environmental benefits in maintaining them as grassland. The environmental significance, recognition of grassland values, and the need to protect existing grassland under threat of conversion is the basis for GRP in the 2008 Farm Bill.

Since GRP is a voluntary program, it is difficult at this time to predict the level of landowner participation in the program. Changes in the reauthorization language relevant to GRP may provide a greater or lesser incentive for landowners to enroll land in easements or rental contracts. Under the 2002 Act, GRP's enrollment cap was set at 2 million acres. Currently, enrollment figures indicate that less than one million acres have been enrolled in the program.

While other Farm Bill programs exist that enable landowners to enter into easements that benefit grasslands like WRP, EQIP, and non-USDA partner programs such as the USFWS Partners Program and the Nature Conservancy's easement programs, few such programs recognize the value of maintaining grazing as a viable use on these lands. Therefore, without GRP there is a much-reduced ability to support the interest of targeting high priority grasslands from a working lands perspective.

4.2.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirement

Under Alternative 2, an additional 1.2 million acres of grassland may be enrolled in GRP in addition to acres enrolled in the program under the 2002 Act. Through participation in the program, there are a variety of conservation benefits that can be realized (including those in Section 4.2) albeit on a relatively small scale. These effects will be discussed in greater detail in the following sections.

As stated in the 2008 Act, the underlying purpose for the reauthorization of GRP is to assist landowners and operators in protecting grazing uses and related conservation values by restoring and conserving eligible land through rental contracts, easements, and restoration agreements on private or tribal, non-Federal lands. The program continues to emphasize support for grazing operations, as well as enhancement of grassland functions and values through the use of conservation activities associated with restoration agreements, as appropriate.

As discussed in Section 1.2, criteria will be established by the Secretary that will be used to evaluate and rank applications for rental contracts and easements. Broad national guidelines for establishing State-specific project selection criteria will be provided to State offices by NRCS. These will be outlined in the Rules. The 2008 Act requires that in establishing the criteria, the Secretary will emphasize support for:

- Grazing operations;
- Plant and animal biodiversity of significant ecological value; and

- Grassland, land that contains forbs, and shrubland under the greatest threat of conversion to uses other than grazing.

The 2008 Act elevates support for grazing operations while maintaining support for plant and animal biodiversity and grasslands under greatest threat of conversion to uses other than grazing.

Since GRP is a voluntary program, it is difficult at this time to predict the level of landowner participation in the program. Changes in the reauthorization language, as well as requirements that will be incorporated into the Rules relevant to GRP may provide a greater or lesser incentive for landowners to enroll land in easements or rental contracts. Under the 2002 Act, GRP's enrollment cap was set at 2 million acres. Currently, enrollment figures indicate that less than one million acres have been enrolled in the program. It is possible that individual GRP enrollment under the 2008 Act may increase due to the elimination of the 40-acre minimum enrollment requirement. This may also increase the total acreage enrollment. It is not expected that the elimination of the 30-year easement option will significantly effect landowner participation in the program, since there were only 22 enrollees in that category.

Alternative 2 is expected to enhance grassland values and function on the 1.2 million acres specified in the 2008 Act and provide further incentive to individuals and communities to address issues associated with grassland degradation and conversion at a broader scale. Further discussion of socioeconomic impacts for GRP is under Section 4.8. Conservation technical assistance and financial assistance through the use of restoration agreements will be provided to enrollees that should indirectly contribute to the retention of grasslands and their continued use to support grazing operations, as well as enhancement of grassland functions and values.

An additional incentive provided by GRP is the ability to reduce the potential of habitat fragmentation on priority grasslands. Fragmentation is one of the primary factors threatening the preservation of biodiversity. More detailed discussion of impact to biological resources will be discussed in Section 4.6. The effects of fragmentation on biodiversity include:

- A reduction in total habitat area. Habitats that have been broken up into smaller units generally support fewer native species and smaller populations of the same species than larger units;
- The loss of species requiring large habitats or having specific habitat requirements that can no longer be met, such as interior habitat dwellers;
- An increase in exotic species at the expense of native and interior species as changes in microclimate occur along power line corridors, roads, and areas of urban development.

4.3 Soil Resource

Resource Characterization and Baseline Environment

Grasslands have more permeable surfaces than developed areas. These permeable surfaces allow more water to infiltrate into the soil rather than flow across on the surface. Developed areas yield up to 16 times more surface flow.[15] Lands maintained in vegetation help to maintain stream integrity and riparian ecosystems by regulating base flows and peak discharges that directly affect water quality and indirectly reduce costs for manmade systems that artificially manage the watershed. By limiting the area and amount of land surface flows in a watershed, the pollution of streams and waterways are reduced by reducing the transport of sediments, bacteria, nutrients, and metals. The more water that is retained on the land surface, the greater the risk for flooding and soil erosion.

Soil resources for this Programmatic EA include those soils associated with grasslands or shrublands. Soil resources are greatly influenced by factors such as climate, soil properties, vegetative cover, and erodibility potential. Soil quality describes how well soil functions to sustain biological productivity, regulate and partition soil water and solutes, filter and buffer organic and inorganic materials, store and cycle nutrients and carbon, and provide stability and support for plants or structures for human habitation.[16] Soil quality is evaluated using inherent and dynamic soil properties.

Inherent soil properties are generally not affected by human management and include soil texture, depth to bedrock, type of clay, cation-exchange capacity, and drainage class. In contrast, dynamic soil properties can change over months to years in response to management and land use. Dynamic soil properties include organic matter, soil structure, infiltration, and water and nutrient holding capacity. Dynamic soil properties are influenced by the type, diversity, and amount of vegetative cover. The use of management to maintain recommended minimum forage heights on grazing lands generally increase soil quality by providing protective soil cover and organic matter. Dynamic soil properties are also influenced by soil disturbance. For example, tillage accelerates decomposition of organic matter and prevents its accumulation, thereby reducing soil stability and soil quality, and increasing soil susceptibility to water and wind erosion. Conservation technical and financial assistance provided through GRP enrollment as easements/rental contracts helps producers address these and other soil quality resource concerns.

Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops is designated as “Prime Farmland.” Historically, these lands have received priority status as farmland, and it is unlikely that these lands will be

[15] Maintaining Farm and Forest Lands on Rapidly Growing Areas, USDA Advisory Committee on Farm and Forest Protection and Land Use, January 2001.

[16] Seybold, C.A., M.J. Mausback, D.L. Karlan, and H.H. Rogers, 1998, Quantification of Soil Quality, In Soil Processes and the Carbon Cycle, R. Lal, J.M. Kimble, R.F. Follett, and B.A. Stewart, eds, CRC Press, Boca Raton, FL.

candidates for enrollment into GRP and will not be a focus of discussion in this Programmatic EA.

4.3.1 Alternative 1 – No Action – No Implementation of GRP

Under this alternative, there is a reduced potential to protect soil resources on private and tribal grasslands. This is due in part to economic limitation of landowners to provide the level of protection and restoration needed to protect and enhance many of these grasslands. In 1999, NRCS identified approximately 280 million acres of rangeland and 75 million acres of pastureland nationwide that were in need of conservation treatment to address resource concerns that degraded their quality and long term productivity. Many of these resource concerns are directly related to soil health/quality. As such, there is a strong need for conservation practices to be applied to help address these resource concerns. Although there are currently more than 700,000 acres enrolled in GRP under the 2002 Act, there will be no additional opportunity for further accrual of environmental benefits from the additional 1.2 million acres authorized in the 2008 Act for GRP.

Since GRP is a voluntary program, it is difficult at this time to predict the level of landowner participation in the program. Changes in the reauthorization language, as well as requirements that will be incorporated into the Rules relevant to GRP may provide a greater or lesser incentive for landowners to enroll land in easements or rental contracts. While other programs exist (see Section 4.9 Cumulative Effects) that enable landowners to address conservation needs relevant to the soil resource, there are few programs that could provide ancillary ecological benefits that can be gained through the use of easements and rental contracts available under GRP to maintain healthy in-tact grassland systems.

4.3.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirements

Continuation of GRP as proposed in the 2008 Act will result in up to 1.2 million additional acres to be enrolled in the program. Alternative 2 will benefit soil quality by providing conservation planning technical and financial assistance during the conservation planning process and subsequent development of restoration agreements and grazing management plans, resulting in conservation practice implementation that protects and enhances soil resources. Soil resources will be protected through application of the conservation practices such as Prescribed Grazing, Brush Management, Pasture and Hay Planting, Nutrient Management, etc., to protect soil from erosion and improve soil quality on lands enrolled into GRP. Appendix C provides a summary of common conservation practices to address resource concerns.

Essentially, conservation practices applied by GRP participants are designed to increase soil stability and decrease soil loss from wind and water erosion. Although there may initially be negative impacts to soils, such as compaction and soil loss resulting from implementation of conservation practices through restoration agreements, these environmental impacts are

considered to be short term, temporary, and/or localized. Indirect long term benefits of GRP participation are realized when conservation practices are implemented to protect soils and improve soil quality by establishing, re-establishing and/or managing vegetation, managing nutrient and pesticide use, minimizing soil disturbance, developing water control structures, and other practices that reduce wind and water erosion.

Appendix A contains a listing of the most frequently applied conservation practices under GRP, most of which have direct or indirect benefits to the soil resource. Based on this information, it is anticipated that the 2008 GRP requirements (Alternative 2) will result in approximately the same number and distribution of practices being applied.

The general effects of conservation practices as summarized above are incorporated by reference from the CPPE[17] and National Handbook on Conservation Practices.[18] Network Effects Diagrams have also been developed for each of the conservation practices that depict the chain of natural resource effects resulting from their implementation. Network Effects Diagrams are available on the NRCS Web site.[19]

Adaptive Management and Mitigation

Conservation practices are designed to lessen soil erosion and improve soil quality. Adaptive management is an integral part of the conservation planning process. NRCS follows up throughout the life of the GRP easement/rental contract and for the life of the conservation practice to ensure that conservation practices applied are effective at addressing the resource concern(s) as discussed in Section 3.2.2.

Additional erosion control practices, such as the ones described below, may be considered appropriate on a site-specific basis when implementing the conservation practices. It is also important to note that as part of the conservation planning process, a site-specific EE assists the Agency by identifying any site-specific mitigation needs.

General erosion control measures that may be utilized on a site-specific basis might include any of the following:

- Shorten the length of exposure of the erosive surface by utilizing temporary erosion control measures such as erosion control blankets and fabrics along with temporary seedlings;

[17] CPPE (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[18] National Handbook of Conservation Practices (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[19] Network Effects Diagrams (http://www.nrcs.usda.gov/programs/ENV_Assess)

- Prevent sediment from moving offsite by utilizing mulch, silt fences, gravel bags, vegetative barriers, and other temporary sediment control devices that trap sediment;
- Clear smaller areas of vegetation at different intervals;
- Schedule excavation during low-rainfall periods;
- Cover disturbed soils with mulch or vegetation immediately after excavation is completed;
- Control concentrated water flows that form rills and gullies through the use of erosion resistant channel linings;
- Temporarily divert concentrated water flows from disturbed areas to stabilized areas to allow vegetation to establish on the disturbed area;
- Minimize the length and gradient of disturbed areas on slopes;
- Inspect and maintain all structural control measures;
- Avoid soil compaction by restricting the use of heavy equipment and vehicles to limited areas; and
- Break up or till compacted soils prior to vegetating.

4.4 Water Resources – Surface Water, Ground Water, Wetlands, and Floodplains

Resource Characterization and Baseline Environment

Grasslands provide greater permeability than developed areas. These permeable surfaces allow more water to infiltrate into the soil rather than flow across on the surface. Developed areas yield up to 16 times more surface flow.[20] Lands maintained in vegetation help to maintain stream integrity and riparian ecosystems by regulating base flows and peak discharges that directly affect water quality and indirectly reduce costs for manmade systems that artificially manage the watershed. By limiting the area and amount of land surface flows in a watershed, the pollution of streams and waterways is minimized through reduced transport of sediments, bacteria, nutrients, and metals. The more water that is retained on the land through soil infiltration, such as is provided by healthy grasslands, the greater the capacity for recharging underground aquifers and supporting wetlands. The greater the surface flow on lands, the greater the risk for flooding and soil erosion. For this Programmatic EA, water resources include surface water, groundwater, wetlands, and floodplains.

[20] Maintaining Farm and Forest Lands on Rapidly Growing Areas, USDA Advisory Committee on Farm and Forest Protection and Land Use, January 2001.

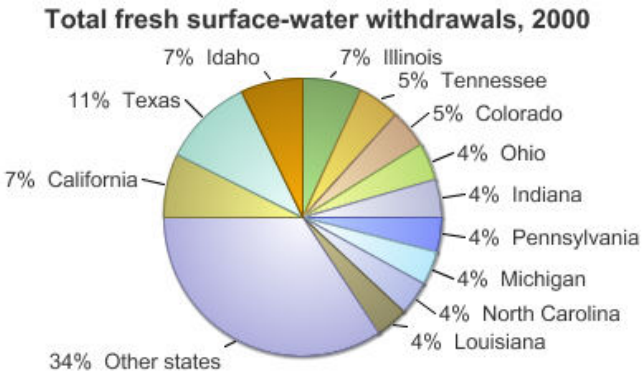
Surface Water

Surface water includes streams, rivers, lakes, and reservoirs. Surface runoff, the part of the precipitation, snow melt, or irrigation water that appears in uncontrolled surface streams, rivers, drains, or sewers can affect surface water quality by depositing sediment, minerals, or contaminants into surface water bodies. Surface runoff is influenced by meteorological factors such as rainfall intensity and duration and physical factors such as vegetation, soil type, and topography.

Surface waters support everyday life through uses such as drinking water and other public uses, and surface water quality is of great importance. Runoff from developed areas and cropland may contain sediment, pesticides, and fertilizers that can flow to surface waters, adversely affecting the water quality needed to support beneficial uses of the water body such as aquatic ecosystems, human uses of the water, and agriculture.

Of all the water used in the United States in 2000 (about 408 billion gallons per day), about 64 percent came from fresh surface water sources (USGS 2005). Figure 4-2 shows surface water withdrawals throughout the United States; Texas uses the greatest amount of surface water relative to all other States.

Figure 4-2 Total Fresh Surface Water Withdrawals, 2000



Groundwater

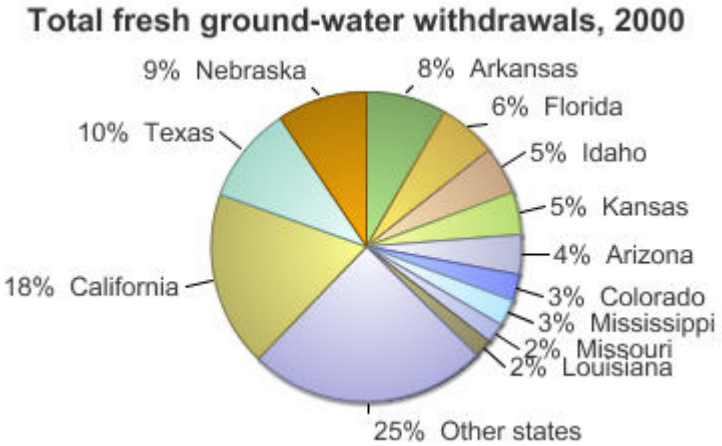
Groundwater refers to subsurface hydrologic resources that are used for domestic, agricultural, and industrial purposes. Groundwater is stored in natural geologic formations called aquifers. Groundwater is also ecologically important because it supports wetlands, and through groundwater-surface water interaction, it contributes flow to surface water bodies. Maintaining

groundwater levels at a sustainable level is an important management issue throughout the country.

Groundwater is an important resource as it supplies water to people in areas with insufficient surface water. In 2000, approximately 70 billion gallons of groundwater were consumed daily (USGS 2005a). The majority of groundwater withdrawals, 68 percent, were used for irrigation; 19 percent were used for public purposes, mainly to supply drinking water (USGS 2005a).

Figure 4-3 shows groundwater withdrawals throughout the United States; California uses the greatest amount of groundwater relative to all other States.

Figure 4-3 Total Fresh Ground Water Withdrawals, 2000



Source: USGS 2005a

Groundwater levels vary seasonally and annually depending on hydrologic conditions. If withdrawals are greater than the recharge, groundwater levels may decline. Maintaining groundwater levels at a sustainable level is an important management issue throughout the country.

Wetlands

Wetlands are defined by NRCS as "areas that have a predominance of hydric soils that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions, except lands in Alaska identified as having high potential for agricultural development and a predominance of permafrost soils." Wetlands can be associated with groundwater or surface water and are identified based on specific soil, hydrology, and vegetation criteria defined by the U.S. Army Corps of Engineers (USACE) regional and 1987 manuals.

There are an estimated 108 million acres of wetlands in the United States comprising 5.5 percent of the surface area.[21] Regional and local differences in soils, topography, climate, hydrology, water chemistry, and vegetation determine wetland type. Wetlands are grouped into two general categories, coastal or tidal wetlands and inland or non-tidal wetlands (Environmental Protection Agency (EPA) 2006c).

Wetlands support plant and animal life, provide flood protection, improve water quality as water filters through the wetland, and store carbon in plants and soil thereby helping reduce the effects of global climate change. Federal wetlands are protected by Section 404 of the Clean Water Act (CWA) and the Food Security Act of 1985.

Floodplains

Floodplains are flat or nearly flat land that border rivers, streams, oceans, lakes, or other bodies of standing water and experience periodic flooding. The Federal Emergency Management Agency defines floodplains as those low-lying areas that are subject to inundation by a 100-year flood, a flood that has a one percent chance of being equaled or exceeded in any given year. Federal agencies are required to avoid, to the extent possible, adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development.

Floodplains are important resources because they provide flood and erosion control, support plant and animal life, help maintain water quality, and contribute to sustaining groundwater levels. Floodplains also provide habitat for plant and animal species, recreational opportunities, and aesthetic benefits.

Permits

Depending on the extent of work conducted under the practices, several permits may be required from the State water quality department or EPA. The completion of a site-specific EE would determine appropriate water quality permits that may be required to be obtained by the producer prior to receiving any financial assistance from NRCS. These water quality permits require that the applicant meet water quality standards. The possible permits that may be required include the following:

[21] Dahl, T.E. 2006. Status and Trends of Wetlands in the Conterminous United States 1998 to 2004. U.S. Department of Interior, Fish and Wildlife Service, Washington, D.C. 112 pp.

- **Section 402 of the Clean Water Act - National Pollutant Discharge Elimination System (NPDES) Permits Which the States Administer**

  EPA currently regulates storm water discharges from construction sites that are one acre or larger (and includes Concentrated Animal Feeding Operations for which Comprehensive Nutrient Management Plans are being developed). Documenting project compliance with the National Pollutant Discharge Elimination System (NPDES) general permit involves the preparation of a storm-water Pollution Prevention Plan and submittal of a Notice of Intent to Discharge to EPA (refer to www.epa.gov/ow/npdes for further details on the Section 402 permitting process).

- **Section 404 of the Clean Water Act - Dredge and Fill Permits**

  The USACE regulates the placement of dredged or fill material in waters of the United States which includes wetlands pursuant to 33 CFR Parts 320-3320. Work and structures that are located in or that affect navigable waters of the United States, including work below the ordinary high water in non-tidal waters, are also regulated by the USACE. Wetlands constructed from uplands typically do not require a 404 permit. The USACE makes all determinations on whether a permit will be needed (see www.usace.gov for further details on the Section 404 permitting process).

  Some agricultural activities are exempted from the Section 404 permitting process. Exempted activities include normal farming, silviculture, and ranching activities such as plowing, seeding, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products or upland soil and water conservation practices. In order to be exempt, the activities must be part of an established farming, silviculture, or ranching operation. An operation ceases to be established when the area has been converted to another use or has been abandoned so long that modifications to the hydrologic regime are necessary to resume operations. (Note that unlike the provisions of the Food Security Act, prior converted cropland where wetland conditions have returned and the area has not been cropped for 5 successive years, is considered "abandoned" and may be subject to CWA jurisdiction.) In order to be considered exempt, the proposed activity must not be a part of an activity that would convert any area of the waters of the United States to uplands or to a use to which it was not previously subject and impair the flow and circulation or reduce the reach of waters of the United States. Deep ripping and other related activities are not exempt. Only the USACE can make exemption determinations.

- **Section 401 Water Quality Certification**

  Pursuant to Section 401 of the CWA, Federal permits for projects in wetlands or waterways must be certified by the State licensing or permitting agency to ensure that State water quality standards are met. Projects requiring a Section 404 or Section 402 permit also need a Section 401 permit (refer to www.epa.gov/ow for further details on the Section 401 certification).

- **Coastal Zone Management Act Consistency Determinations**

Coastal area protection is regulated under the Coastal Zone Management Act (16 U.S.C. §1451). Under the Coastal Zone Management Act (16 U.S.C. §1456(c)(1)(A) it is stated that:

> "Each Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent, to the maximum extent practicable, with the enforceable policies of approved State management programs."

The Act also requires Federal agencies undertaking such activities to provide a certification that the proposed activities will comply and be consistent with the State's approved management plan to the appropriate licensing or permitting agency. This certification, also known as a consistency determination, should be presented in an application for a required Federal license or permit to conduct any activity affecting land or water uses in the coastal zone. The appropriate licensing or permitting agency is generally the State environmental agency's office of Coastal Zone Management or the equivalent.

The Act encourages each coastal State to develop a Coastal Zone Management Plan which provides for "increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, and improved predictability in governmental decisionmaking" (§303(3)). In effect, these plans regulate lands and water use specifically for the coastal zones. Federal agencies may not approve proposed projects which are judged to be inconsistent with a State's approved management plan, unless this judgment is overridden by the Secretary of Commerce who has principal authority over the Federal Coastal Zone Management Plan.

- **Floodplain Permits**

There may also be the need for State or local floodplain permits. Federal policy designed to promote the prudent management of floodplains has been in effect since 1968 with the passage of the National Flood Insurance Act (P.L. 90-448, 42 U.S.C. §4001 et. seq.). By providing Federal subsidies for private flood insurance and by requiring flood-prone communities to have the insurance as a condition to receiving Federal assistance, that law and the Flood Disaster Protection Act of 1973 (P.L. 93-234, 87 Stat. 939 [1973]) recognized the serious economic and environmental damage that can result from flooding in developed lowland areas.

The Executive Order (EO) 11988 regulates the actions of Federal agencies that affect flood plains. This order requires all agencies undertaking, financing, or assisting

proposed activities to determine whether they will occur in or affect a floodplain and to evaluate potential measures to avoid adversely affecting the floodplain. Location of floodplains can be determined by examining maps available from the U.S. Department of Housing and Urban Development, Federal Emergency Management Agency, USDA, and State water resource planning agencies. Agencies should select, if available, viable alternative locations for undertakings that will not affect flood plains.

If construction or improvements will be undertaken or supported in a floodplain because no practicable alternative locations are available and compliance with the EO has occurred, measures should be taken to minimize the risk of flood damage to or within the floodplain, such as flood proofing the facility to be constructed, elevating structures above base flood levels, or providing compensatory flood storage. In addition, public review may be required for each plan or proposal for action taking place within a floodplain.

4.4.1 Alternative 1 – No Action – No Implementation of GRP

Under the No-Action Alternative, there is a potential for direct adverse impacts to surface water, groundwater, wetlands, and floodplains due to the conservation program not being implemented. The ability to enroll high-priority grasslands into GRP would be greatly reduced, although there may be opportunities to take advantage of other Federal and non-Federal easement opportunities offered by Federal and State government programs and local land trusts. Priority grasslands would increasingly be at risk for conversion to development or other land uses, or could continue to decline in health, which would have long term detrimental effects on water resources in an area. This is particularly important for those agricultural lands located immediately adjacent to these resources. Conservation practices designed to avoid, mitigate, enhance, and improve the quality of surface water, ground water, wetland functions and values, and floodplain environments would no longer be implemented on these lands through GRP restoration agreements. There would be a reduced ability to promote grasslands as a way to enhance ecological functions and values related to water resources.

It is beyond the scope of this Programmatic EA to quantify the potential adverse impacts to these resources as producers may apply conservation strategies regardless of whether financial assistance is provided to the producer. Producers may, in fact, use the conservation technical assistance provided by NRCS to employ conservation practices to help avoid, mitigate, enhance, protect, and improve the quality of the environment for these resources.

Since GRP is a voluntary program, it is difficult at this time to predict the level of landowner participation in the program. Changes in the reauthorization language, as well as requirements that will be incorporated into the Rules relevant to GRP may provide a greater or lesser incentive for landowners to enroll land in easements or rental contracts. While other programs exist (see Section 4.9 Cumulative Effects) that enable landowners to address conservation needs relevant to water resources, there are few programs that could provide ancillary ecological benefits that can

be gained through the use of easements and rental contracts available under GRP to maintain healthy in-tact grassland systems.

4.4.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirements

It is likely for there to be beneficial indirect effects on surface water quality, ground water, wetlands functions and values, and floodplains which could occur with implementation of GRP through acquisition of easements, rental contracts, and implementation of accompanying restoration agreements, conservation practices, and grazing management plans. Additional acreage enrollment of 1.2 million acres authorized in the 2008 Act into the program would support and enhance existing efforts to maintain healthy grasslands that would contribute to enhanced water quality as well as water quantity. GRP can also provide the catalyst by which other Federal and non-Federal easement programs can be implemented to broaden the scope of the effort towards maintaining viable grazing lands and healthy grasslands in specific locales. Healthy grassland ecosystems provide a variety of environmental benefits to the water resource.

In-tact healthy grasslands can provide open space in and around urban areas, protect watersheds that supply urban water, reduce erosion and sedimentation, and enhance riparian areas that would in turn provide recreational opportunities to enhance the quality of life for the community. Implementing grazing management plans can protect surface water quality by filtering out sediment, organic materials, fertilizers, pesticides, and other pollutants before they reach the adjacent water body. Other conservation practices designed to protect and restore surface water quality include re-establishment of permanent vegetation that reduces the potential for wind and water erosion that could transport sediment to nearby waterways.

There is the potential for there to be minor indirect short term and localized negative impacts to surface water quality, groundwater, wetlands, and floodplains as it relates to the implementation of conservation practices as part of restoration agreements depending on the area of the country where the conservation practices are applied. However, the site-specific EE that is prepared as part of the conservation planning process would take into account this potential impact and provide the means to avoid or mitigate any minor or temporary negative impacts to water resources.

It is beyond the scope of this Programmatic EA to quantify all of the potential impacts to these resources since the program is voluntary, and it is difficult to estimate landowner participation in the program. Additionally, impacts will differ based on geographic location.

Appendix A contains a listing of the most frequently applied conservation practices under GRP, most of which have direct or indirect benefits to the water resource. Based on this information, it is anticipated that a continuation of the current 2002 requirements (Alternative 2) would result in approximately the same number and distribution of practices being applied.

The general effects of conservation practices as previously summarized are incorporated by reference from the CPPE[22] and National Handbook on Conservation Practices.[23] Network Effects Diagrams have also been developed for each of the conservation practices that depict the chain of natural resource effects resulting from their implementation. Network Effects Diagrams are available on the NRCS Web site.[24]

Adaptive Management and Mitigation

For water resources, conservation practices as associated with restoration agreements and grazing management for GRP enrollees are designed to improve surface water quality; control excessive runoff, flooding, or ponding; improve water flows; reduce pollutant loadings of pesticides in ground and surface water; reduce pathogens in surface water and groundwater; and reduce suspended solids in surface water to just name a few of the benefits.

Adaptive management is an integral part of the conservation planning process in that NRCS follows up throughout the life of the GRP contract/easement and O&M agreement to ensure that conservation practices applied are effective at addressing the resource concern.

As part of the conservation planning process, a site-specific EE is prepared to address and ensure that the appropriate conservation practices are applied to enhance, improve, and conserve water resources. The EE further assists the Agency by identifying any other site-specific mitigation and permitting needs.

4.5 Air Quality – Clean Air Act

Resource Characterization and Baseline Environment
The Clean Air Act (CAA) is the primary Federal law that protects the Nation's air quality for the purposes of public health and welfare. NRCS, as a conservation agency, supports the CAA and the protection of air resources, in general, through four air quality resource concern components: particulate matter (PM), ozone (O_3) precursors, GHGs, and odor.

National Ambient Air Quality Standards

The CAA requires EPA to establish National Ambient Air Quality Standards (NAAQS) for six pollutants. They are particle pollution (often referred to as PM), ground-level ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), and lead. EPA has promulgated the current NAAQS in 40 CFR Part 50.

[22] CPPE (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[23] National Handbook of Conservation Practices (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[24] Network Effects Diagrams (http://www.nrcs.usda.gov/programs/ENV_Assess)

The EPA calls these six pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called primary standards. Another set of limits intended to prevent environmental and property damage is called secondary standards. The primary standard represents the maximum concentration of a particular pollutant in the ambient air (i.e., locations to which the general public has access) that will not adversely impact public health or welfare.

A geographic area that meets or has air quality better than the primary standard (or is unclassifiable) is called an attainment area. Areas that do not meet the standards or contribute pollution to nearby areas are called nonattainment areas. Nonattainment areas that have air quality data showing attainment, in accordance with requirements applicable to the relevant NAAQS, and have been redesignated to attainment are called maintenance areas, because the emission control strategies used to reach attainment status are still required to "maintain" the positive effect on air quality in those areas. An area may be designated attainment for some pollutants and nonattainment for others.

The stringency of air pollution regulations in a particular area is based upon whether that area is in attainment (i.e., is in compliance) or nonattainment (i.e., is not in compliance) with NAAQS. Nonattainment areas typically have more stringent control and permitting requirements than attainment areas.

Implications for agriculture: State and local air quality agencies are required to consider all sources (including agriculture) for a particular pollutant when determining how to bring an area into compliance with a NAAQS. Tribal air quality agencies may also regulate sources of air pollution, however, where they do not, EPA is the regulatory agency in Indian Country. Therefore, if an agricultural operation is found to cause or contribute to an exceedance of the NAAQS, additional regulatory controls may be mandated for the agricultural source.

Criteria Pollutants

Particulate matter is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles.

The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. EPA groups particle pollution into two categories:

"Inhalable coarse particles," such as those found near roadways and dusty industries, are larger than 2.5 micrometers but not larger than 10 micrometers in diameter.

"Fine particles," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air.

Thus, sources that emit PM as well as certain precursors that contribute to the formation of PM (e.g., NOx and sulfur dioxide (SO_2)) may be regulated. Additionally, some areas may regulate volatile organic compounds (VOC) and ammonia as precursors to formation of fine particles ($PM_{2.5}$), if these pollutants significantly contribute to formation of $PM_{2.5}$ for a particular area.

Ozone is not emitted directly from air pollutant emission sources. Rather, it is formed in the atmosphere via chemical reactions. As such, emissions of VOC and NOx are regulated as precursors to ozone formation.

Implications for agriculture: The major criteria pollutants of concern for agriculture are PM and ozone. Agricultural operations can contribute to ozone and particulate matter concentrations via emissions of VOC, NOx, direct PM, and ammonia. All biological organisms emit VOC, and VOC is also emitted during the breakdown or combustion of biological materials. NOx is generally associated with combustion (e.g., farm vehicle, tractor, and irrigation engines) as well as with agricultural burning. Particulate matter may be either emitted directly (dust is a form of particulate matter) or formed in the atmosphere from other pollutants, such as ammonia from animal operations or fertilizer application. The criteria pollutants CO, NOx, SOx, and lead are typically products of combustion.

Air Toxic Pollutants

Toxic air pollutants, also known as hazardous air pollutants (HAPs), are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. EPA is working with State, local, and Tribal governments to reduce air toxics releases of 188 pollutants to the environment. Examples of toxic air pollutants include benzene, which is found in gasoline; perchlorethlyene, which is emitted from some dry cleaning facilities; methylene chloride, which is used as a solvent and paint stripper by a number of industries; and methanol which may be emitted from certain agricultural operations.

Implications for agriculture: Agricultural operations can emit HAPs. In fact, many VOC are HAPs. However, there is no evidence to date that agricultural production operations are major sources of HAPs. Additionally, the vast majority of HAPs that could be emitted from agricultural production operations are the result of natural biological processes (i.e., the natural microbial decomposition of organic material).

Since agricultural production HAPs are naturally-occurring, the level of HAP emissions from agricultural operations are relatively small, and potential control of these HAPs would mirror VOC emissions mitigation strategies, NRCS has not specifically prioritized the control of HAP emissions from agricultural production operations.

Regional Haze Rule (RHR)

The CAA sets forth a national goal for visibility which is the ''prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution.'' There are 156 Class I areas across the country, including many well-known national parks and wilderness areas. Regional haze is visibility impairment caused by the cumulative air pollutant emissions from numerous sources over a wide geographic area. In 1999, EPA promulgated the Regional Haze Regulations under 40 CFR Part 51 to protect and improve the visibility at these Class I areas.

Implications for agriculture: Particulate matter is the major source of visibility impairment in Class I areas. Agricultural operations can contribute to particulate matter concentrations via direct emissions of PM and secondary formation of PM from precursor gases such as VOC, NO_x, and ammonia.

State and Tribal Implementation Plans (SIPs/TIPs)

EPA can delegate authority to implement the CAA requirements to State and Tribal air quality agencies. In order to accomplish this purpose, State agencies are required to develop SIPs and Tribes may develop TIPs[25]. A SIP/TIP is the collection of regulations a State or Tribal air quality agency uses to address air quality concerns in its area. SIP/TIP regulations developed with adequate public review and comment, and have been approved by EPA, are considered federally enforceable.

Among other air quality regulations, SIPs/TIPs generally include regulations regarding:

- Construction permits
- Emission standards for certain sources and pollutants

The CAA grants EPA the authority to approve State/Tribal operating permit programs outside of the SIP/TIP and the resulting operating permits are federally enforceable.

SIPs/TIPs may also contain other regulations that are not specifically required under the CAA, such as odor regulations, and these regulations do not necessarily have to be approved by EPA. However, any SIP/TIP regulations that are not approved by EPA are not considered federally enforceable.

[25] EPA is the regulatory authority if the tribe is unable to develop a TIP.

Implications for agriculture: A SIP/TIP is a mechanism by which State and Tribal air quality agencies can address local air quality concerns. The extent to which a particular SIP/TIP may impact agricultural operations in that area is directly related to the local air quality issues. For example, a State with a large population of animal feeding operations may have a SIP regulation that addresses odors from these operations. Alternatively, States with a significant amount of agriculture in a nonattainment area (such as California's San Joaquin Valley) may develop SIP regulations limiting the emissions from, or mandating regulatory controls for agricultural sources. In fact, the San Joaquin Valley Air Pollution Control District has developed a SIP regulation whereby agricultural operations must select a certain number of specified Conservation Management Practices to reduce emissions of PM_{10}.

General Conformity

Federal actions within a nonattainment or maintenance area must conform to the appropriate SIP requirements. Thus, the Determining Conformity of General Federal Actions to State or Federal Implementation Plans ("General Conformity") Rule was promulgated under 40 CFR Parts 6, 51, and 93. General Conformity applies to all actions supported, funded, or permitted by the Federal government within a nonattainment or maintenance area.

Implications for agriculture: Federal funds under Farm Bill programs are sometimes used to apply conservation practices on the ground and, as such, are subject to General Conformity if the conservation practices are applied in a nonattainment or maintenance area. Most conservation practices mitigate impacts to air quality and thus can be presumed to conform to General Conformity requirements.

Greenhouse Gases and Carbon Sequestration

GHG emissions are a global concern, and while agricultural emissions of GHGs are minor compared to other sectors (such as industry, transportation, and electric generation), agriculture is both a source of and an important means of reducing GHGs. Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are the primary GHGs of concern from agricultural operations. However, agriculture is also an important means of reducing GHG through soil carbon sequestration. Anthropogenic sources of CO_2 in agriculture are from combustion processes and soil tillage. Nitrous oxide is emitted due to nitrogen conversion processes in the soil and manure piles, and methane is primarily from animal production and manure storage. Conservation tillage practices, nutrient management, manure management, and anaerobic digesters are some of the conservation practices that can mitigate these emissions. Conservation tillage practices will, in particular, enhance soil carbon sequestration. Although GHGs are not currently regulated under the CAA, State, local, and Tribal governments may develop regulations concerning emissions of GHGs.

Odors

Odor is not regulated under the CAA. However, State, local, and Tribal governments may develop regulations regarding odors. The main classes of odorous compounds produced by agricultural sources are VOC, odorous sulfur compounds, and ammonia. Agricultural odors typically arise from animal operations, manure management, and land application of manure. Conservation practices such as feed management, nutrient management, manure management, lagoon covers, and anaerobic digesters can reduce the production and emission of odorous compounds.

Baseline Environment

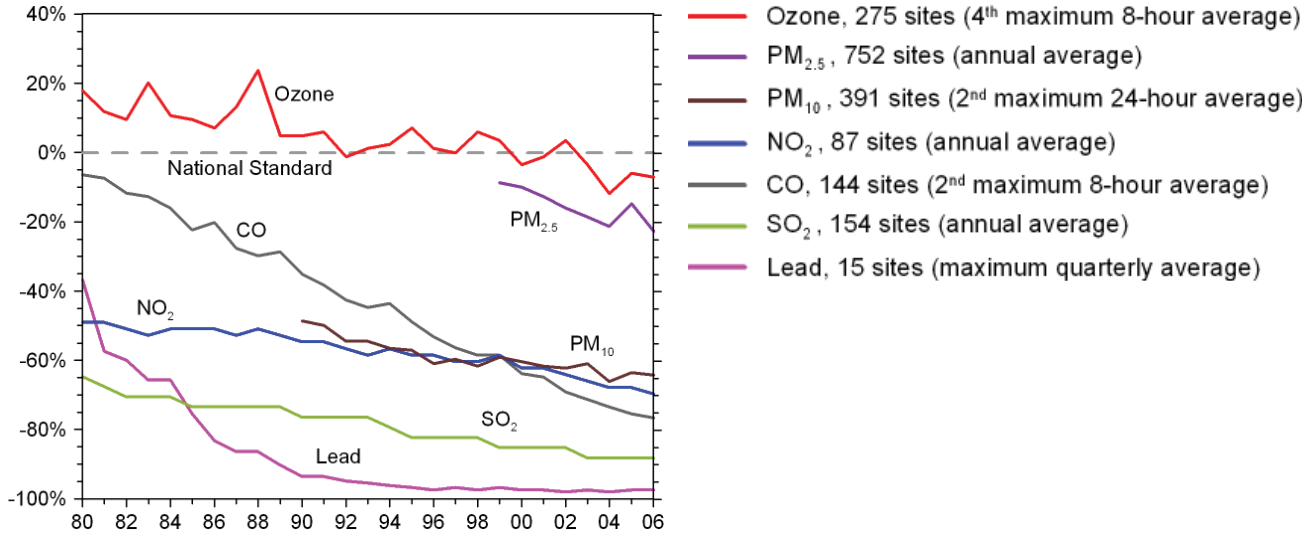
Cleaner cars, industries, and consumer products have contributed to cleaner air for much of the United States. Since 1980, nationwide air quality, measured at more than a thousand locations across the country, has improved significantly for all six criteria pollutants.

Figure 4-4 shows national trends in the six principal pollutants (those for which NAAQS were established) relative to their air quality standards, as measured by monitors located across the country. Most pollutants show a steady decline throughout the time period with a couple of exceptions. Ozone declined in the 1980s, leveled off in the 1990s, and showed a notable decline after 2002.

Most of the pollutants show a smooth, gradual downward trend from year to year, while ozone and $PM_{2.5}$ trends are not smooth and show year-to-year influences of weather conditions which contribute to their formation.

All of the six principal pollutants show improvement (decline in ambient air concentrations) over the 27-year period. While progress has been made nationally, there are still areas that have local air quality problems caused by one or more pollutants. Ozone and fine particle pollution continues to present air quality concerns throughout much of the United States, with many monitors measuring concentrations above or close below NAAQS.

Figure 4-4. Comparison of National Levels of the Six Principal Pollutants to National Ambient Air Quality Standards, 1980-2006



National levels are averages across all sites with complete data for the time period.

Note: Air quality data for PM_{10} and $PM_{2.5}$ start in 1990 and 1999, respectively.

Source: http://www.epa.gov/air/airtrends/2007/

Impacts to air resources would be considered significant if there were exceedances of NAAQS for PM, ozone precursors, GHGs, or odor.

Permits

Depending on the extent of work conducted under the practices, air quality permits may be required from the State, Tribe or EPA. The completion of a site-specific EE would determine the appropriate air quality permit that may be required to be obtained by the producer prior to receiving any financial assistance from NRCS.

Permit Programs

There are two main types of permits that are used to establish emission limits for a source – construction permits and operating permits.

Construction Permits

Construction permits are used to establish emission limits for new air pollutant emission sources or changes to existing sources. As such, they are also referred to as New Source Review (NSR)

permits. Certain construction permits are federally mandated and are referred to as Federal construction permits. Federally mandated construction permits are issued under the "major NSR" program. Air pollutant emission sources that are not required to obtain Federal construction permits are typically subject to a State or Tribal construction permit system referred to as "minor NSR." Both Federal and State or Tribal construction permits are typically issued by the State or Tribal air quality agency.

The level of construction permitting required depends on the sum of a pollutant's potential to emit from all air pollutant emission sources at a site. Most agricultural operations do not qualify as major stationary sources under the Federal guidelines and are subject instead to State or Tribal construction permitting (minor NSR). However, large agricultural operations, especially in nonattainment areas, may qualify as major stationary sources that are subject to Federal permitting requirements.

State or Tribal Construction Permits

Projects for which a Federal construction permit is not required must still typically obtain some form of authorization prior to initiating construction. This authorization usually is received in the form of a State or Tribal construction permit. The type, complexity, and stringency of these authorizations/permits varies widely among regulatory agencies and is dependent upon the types of air pollutant emission sources under review and the type and amount of emissions increases associated with the proposed project.

> *Implications for agriculture:* Most agricultural operations are not major stationary sources and are not required to obtain Federal construction permits. However, depending upon the SIP/TIP regulations in effect for the area in which the operation is located, many agricultural operations are now required to obtain some form of State or Tribal permit or authorization prior to initial construction or initiating a modification of an existing source. For example, a dairy that is considering the installation of an anaerobic digester may be required to obtain a permit for the digester and any other modifications associated with that project. Additionally, many State regulatory agencies now require permits for AFOs prior to constructing the facility.

Operating Permits

Operating permits authorize the operation of air pollutant emission sources following the completion of construction or modification of the sources. Existing sources may also be required to obtain an operating permit in order to authorize continued operation of the site. As with construction permits, certain sites may also be required to obtain a Federal operating permit. Air pollutant emission sources that are not required to obtain a Federal operating permit are typically subject to a State or Tribal operating permit. However, most agricultural production operations are not currently subject to Federal operating permit requirements.

State or Tribal Operating Permits

Sites for which a Federal operating permit is not required must still typically obtain some form of authorization to operate. This authorization is usually received in the form of a State or Tribal operating permit. As with State and Tribal construction permits, the type, complexity, and stringency of State and Tribal operating permits varies widely among regulatory agencies and is dependent upon the types of air pollutant emission sources, as well as the type and amount of pollutants emitted from those sources at the site.

> *Implications for agriculture:* Agricultural operations that are required to obtain construction permits are typically required to obtain operating permits upon completion of the new construction or modification. Additionally, larger operations, especially in nonattainment areas, may be determined to be major sources and subject to Federal operating permit requirements. For example, several dairies in the South Coast Air Quality Management District in California have been required to obtain Federal operating permits.

4.5.1 Alternative 1 – No Action – No Implementation of GRP

The intent of GRP is to protect and enhance grassland functions and values. Among other things, healthy well-managed grasslands contribute significantly to carbon sequestration, reduced PM, and GHGs. It would be anticipated that without GRP, air pollutants could increase, to a minor degree, due to conversion of grasslands to urban uses and would result in reduced carbon sequestration potential. Non-participation in the program would reduce implementation of practices that may mitigate air quality issues by reducing PM due to overgrazing and erosion and decrease soil organic matter and carbon sequestration. Conservation practices designed to avoid, mitigate, enhance, and improve air quality would no longer be implemented on these lands through GRP restoration agreements.

It is beyond the scope of this Programmatic EA to quantify the potential adverse impacts to these resources as producers may apply conservation practices regardless of whether financial assistance is provided to the producer. Producers may, in fact, use the conservation technical assistance provided by other NRCS Farm Bill programs to employ conservation practices that would help avoid, mitigate, enhance, protect, and improve the quality of the environment for these resources.

4.5.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirements

In general, it is likely for there to be long term beneficial effects on air quality which could occur from program protection of grasslands and implementation of conservation practices by GRP participants through restoration agreements. Among other things, healthy, well-managed grasslands contribute significantly to carbon sequestration, reduced PM, and GHGs.

Grasslands enrolled in the program could implement such practices as feed, manure, and nutrient management, as needed, that would reduce emissions of ammonia, oxides of NOx, and nitrous oxide (N_2O) that would address the PM, ozone precursors, GHG's, and odor air quality concerns.

There is the potential, however, for there to be minor indirect short term and localized impacts to air quality as it relates to the implementation of conservation practices depending on the area of the country where the conservation practices are applied. For example, the maintenance of healthy grasslands may require a prescribed burn to manipulate a plant community in order to achieve a desired outcome or improve the health of the grassland system. In this case, burn plans will include the appropriate considerations necessary to mitigate and minimize short term negative effects as specified in the Prescribed Burning (338) conservation practice standard and specifications. However, in many cases one of the long term benefits associated with prescribed burning is enhanced carbon sequestration.

It is beyond the scope of this Programmatic EA to quantify the potential effects of these kinds of activities on the quality of the air resource. However, the site-specific EE that is prepared as part of the conservation planning process will take into account this potential impact and provide the means to avoid or mitigate any minor or temporary negative impacts.

Appendix A contains a listing of the most frequently applied conservation practices under GRP, many of which have direct or indirect benefits to the air resource. Based on this information, it is anticipated that a continuation of GRP under the 2008 Act requirements (Alternative 2) would result in approximately the same number and distribution of practices being applied as under the original 2002 Act requirements.

The general effects of conservation practices as summarized above are incorporated by reference from the CPPE[26] and NHCP.[27] Network Effects Diagrams have also been developed for each of the conservation practices that depict the chain of natural resource effects resulting from their implementation. Network Effects Diagrams are available on the NRCS Web site.[28]

If there is a need for an air quality permit which would be identified as part of the conservation planning effort and in the development of the site-specific EE, then NRCS policy requires the producer to obtain those permits that contain the measures to ensure protection of the resource prior to NRCS providing GRP financial assistance to the producer through restoration agreements.

[26] CPPE (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[27] National Handbook of Conservation Practices (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[28] Network Effects Diagrams (http://www.nrcs.usda.gov/programs/ENV_Assess)

Adaptive Management and Mitigation

Conservation practices are designed to improve air quality by mitigating the impact or reducing the emission of PM, ozone precursors, GHGs, and odorous compounds.

Adaptive management is an integral part of the conservation planning process in that NRCS follows up throughout the life of the GRP easement/rental contract to ensure that conservation practices applied are effective at addressing the resource concern(s).

It is important to note that as part of the conservation planning process, a site-specific EE is conducted to address and ensure that the appropriate conservation practices are applied to enhance, improve, and conserve air quality resources. The EE further assists the Agency by identifying any other site-specific mitigation and permitting needs.

4.6 Biological Resources – Vegetation, Livestock/Wildlife, and Protected Species and Habitat

Resource Characterization and Baseline Environment

Biological resources include plant and animal species (both wild and domestic) and the habitats in which they occur. Plants and wildlife refer to the plant and animal species, both native and introduced, which characterize a region. There are certain plant and animal species that are given some level of Federal protection due to factors such as their importance, rarity, or declining numbers. The primary Federal laws protecting these species are the Migratory Bird Treaty Act (MBTA), the Endangered Species Act (ESA), and the Magnuson Stevens Fishery Management and Conservation Act (MSFMCA). There are 609 species of animals and 744 plants that are listed as endangered or threatened in the United States (6/23/08 USFWS) under the Endangered Species Act. It is also NRCS policy to offer State-specific "Species of Concern" similar levels of protection as agreed upon by the State Conservationist and applicable State wildlife division.

The conservation planning process involves site-specific EEs that help NRCS and the landowners determine the presence or absence of these species and applicable critical habitats on private and non-Federal lands. If species are present, the NRCS planner determines whether an impact to the species or critical habitat may result from the planned activities. Where possible, impacts are identified, financial assistance is planned, and applicable procedures for interagency consultation under the ESA are followed.

As discussed in Section 1.2, the installment of industrial windmills for commercial energy generation will be prohibited unless a waiver is granted for such activities by the Secretary. A waiver will not be granted if there may be impacts to State or federally listed endangered and threatened species and/or migratory birds protected under the MBTA or Bald and Golden Eagle Protection Act. No waivers will be issued until the USFWS finalizes "Guidance on Avoiding

and Minimizing Wildlife impacts from Wind Turbines"[29] and protocols are established by NRCS that can effectively assess site potential for such activities and their potential impacts to the human environment.

Vegetation and Wildlife

Vegetation is often described in terms of Ecoregions, which are areas of relatively homogenous soils, vegetation, climate, and geology.[30] There is a hierarchy of four levels of Ecoregions: domain, division, province, and section (also called subregion). There are three domains in the continental United States which are large-scale areas of similar climates: Humid Temperate, Dry, and Humid Tropical:

- The Humid Temperate Domain covers part of the central United States to the east coast, and the outer west coast (California, Washington, and Oregon).
- The Dry Domain covers the central United States where annual losses of water through evaporation exceed annual water gains from precipitation. Dry climates are the most extensive of all climatic groups covering a quarter or more of the Earth's land surface. Two types of dry climates are commonly recognized, the arid desert and the semiarid steppe. Generally, the steppe is a transitional belt surrounding the desert and separating it from humid climates.
- The Humid Tropical Domain is found in the very southern tip of Florida where the climate is largely controlled by equatorial and tropical air masses. There is an average monthly temperature above 64 degrees Fahrenheit with no winter season.

Within these domains, there are a number of divisions delineated by finer-scale climatic differences. Divisions are further subdivided into provinces which are differentiated based on vegetation. Each Ecoregion is characterized by wildlife common to that habitat.

Domestic Livestock

There are approximately 407 million acres of private, non-Federal rangeland in the United States and approximately 115 million acres of pastureland. Approximately 47 percent of all private land in the United States is grazed land, which is primarily grassland. Grazing lands are the single largest land type in the United States. Therefore, the environmental quality and sustainability of these grasslands are important to all citizens.

[29] http://www.fws.gov/habitatconservation/

[30] Bailey, R.G. 1980. Descriptions of the Ecoregions of the United States. Washington D.C.: U.S. Department of Agriculture, Forest Service. Miscellaneous Publication 1391. 77 p.

Domestic livestock have been an important component of grazing lands in the United States throughout its 200-year history, and grasslands have provided significant economic benefits to grazing operations throughout the country. Properly managed grazing lands provide positive environmental benefits that include all those discussed in Section 4.2. Depending on how different kinds of livestock are managed on grasslands they can, however, negatively affect soil quality through compaction, erosion, and changes in the plant community. Water quality impacts of livestock on grazing lands include manure and urine deposited directly into water or on land near surface waters where leaching and surface runoff can transport potential contaminants to streams, ponds, and lakes. Inappropriate grazing practices may accelerate erosion and sediment transport to water, alter stream flow, and disrupt aquatic habitats. Mismanagement of grazing lands can impair the capacity of riparian vegetation to filter contaminants, shade aquatic habitats, and stabilize streambanks and shorelines.[31]

Livestock grazing, however, is one of the few tools available to natural resource managers for developing and maintaining desirable plant community structure; decreasing fuel loads to decrease wildlfire risks; and regulating nutrient cycling in the ecosystem, and thereby maintaining healthy grasslands. There are a number of ways that environmental impacts of livestock grazing can be prevented or minimized by controlling when, where, how long, and how intensively forages are grazed. More importantly, proper grazing management can result in positive environmental impacts such as controlling fuels to decrease wildfires, carbon sequestration, and maintaining biodiversity.[32]

Federally Protected Species and State-Listed Species of Concern

Federally protected species for this Programmatic EA covers migratory birds, endangered and threatened species and their critical habitat, and essential fish habitat. The primary laws protecting these species are the MBTA, ESA, and MSFMCA.

Baseline information for migratory birds, federally listed endangered and threatened species, and critical habitat is incorporated by reference from the USFW Web sites at http://www.fws.gov/endangered/federalregister/1998/s980810b.html and http://www.fws.gov/endangered/wildlife.html.

State-listed species of concern are included in Section II of each State's FOTG. It is NRCS' policy to consider potential impacts to these species and to provide alternatives, where necessary, to avoid or mitigate negative impacts to these species. Short and long-term impacts are analyzed and documented in the EE.

[31] *Environmental Impacts of Livestock on U.S. Grazing Land*, Council for Agricultural Science and Technology (CAST) Issue Paper, Number 22, November 2002.

[32] CAST Issue Paper, Number 22, November 2002.

Impacts to biological resources would be considered significant if there are severe adverse environmental impacts to fish and wildlife, livestock, endangered and threatened species, and/or critical habitat for biological resources.

Permits

Depending on the extent of work conducted under the conservation practices, Section 7 consultation and an incidental "take" permit under ESA may be required if there are endangered and threatened species or designated critical habitats present on the property. Likewise, there may be a need for the property owner to obtain any necessary permits under MBTA for the presence of any migratory bird prior to receiving GRP financial assistance. The completion of a site-specific EE would determine if consultation under ESA would be required and whether any permit or authorization would need to be obtained from the USFWS and/or NMFS.

4.6.1 Alternative 1 – No Action – No Implementation of GRP

Under the No-Action Alternative, there is a potential for direct adverse impacts to vegetation, wildlife, and protected species due to the program not being implemented. Grasslands potentially eligible for enrollment in GRP and considered to be of significant importance relevant to biological functions and values may be converted to development or other land uses. Conservation practices designed to avoid, mitigate, enhance, and improve the quality of plant diversity, productivity, control of invasive species, increased enhancement for pollinator habitat, protection and restoration of endangered and threatened plant species, enhancing habitat for fish and wildlife, reducing the potential for habitat fragmentation, protection and restoration of critical habitat, and protection and restoration of endangered and threatened species may not be applied due to loss of these areas.

Lands currently enrolled in GRP or other conservation programs could suffer from the potential impacts of agricultural production operations not implementing the conservation practices designed to avoid, mitigate, enhance, and improve biological resources including:

- Increasing the quality of plant diversity and productivity;
- Proper grazing use;
- Control of invasive species;
- Enhancement of pollinator habitat;
- Protection and restoration of endangered and threatened plant and animal species and their critical habitats;
- Enhancement of habitat for fish and wildlife; and
- Reduction in the potential for habitat fragmentation.

Without the benefit of GRP to buffer the effects of fragmentation, the opportunity of enrolling priority grassland habitat would no longer be available, although there may be options through alternative Federal and non-Federal means. Fragmentation is one of the primary factors threatening the preservation of biodiversity. The effects of fragmentation on biodiversity include:

- A reduction in total habitat area. Habitats that have been broken up into smaller units generally support fewer native species and smaller populations of the same species than larger units;
- The loss of species requiring large habitats or having specific habitat requirements that can no longer be met such as interior habitat dwellers; and
- An increase in exotic species at the expense of native and interior species as changes in microclimate occur along power line corridors, roads, and areas of urban development.

It is beyond the scope of this Programmatic EA to quantify the potential adverse impacts to these resources as producers may apply conservation practices regardless of whether financial assistance is provided to the producer. Producers may, in fact, use the conservation technical assistance or other Farm Bill programs provided by NRCS to employ conservation practices such as Prescribed Grazing (528); Early Successional Habitat Development (647); Upland Wildlife Management (645); and Wetland Restoration (657) to help avoid, mitigate, enhance, protect, and improve the quality of the environment for these resources.

4.6.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirements

Although on a limited scale with a cap of 1.2 million acres nationwide, maintaining grasslands under GRP as easements and rental contracts that include grazing management plans will protect biodiversity by providing habitat for fish and wildlife including endangered and threatened species while also meeting the needs of domestic livestock. Maintaining ecosystem continuity by reducing habitat fragmentation contributes to species diversity and vigor by maintaining habitat for intermixing and for escape from catastrophic events such as wildfire. Fragmentation and loss of existing habitat are among the leading causes of species extinction. Lands enrolled in GRP would ensure that these grasslands are protected by limiting the potential for development and, when necessary, through restoration of ecological functions and values. As described in Section 4.2, healthy grasslands perform a variety of ecosystem functions as a result of their physical, chemical, and biological attributes.

Along with providing benefits to vegetation, fish and wildlife, and protected species and habitat, implementation of GRP under the 2008 Act would serve to enhance the viability of grazing operations on grasslands through implementation of restoration agreements and grazing management plans. Specific natural resource concerns related to domestic animals that can be addressed include inadequate quantities and quality of feed and forage, inadequate shelter, and

inadequate quantity or quality of water. In order to reduce stress and mortality and maximize productivity, livestock producers must provide adequate food, water, and cover. They must also handle overall health care, reproduction, and manure management.

Conservation activities are used to address domestic animal natural resource concerns by managing forage production through manipulation of the intensity, frequency, duration, distribution, and season; and by adjusting organic and inorganic fertilizer inputs, improving livestock water supplies and systems, and managing livestock manure. Because the presence and management of livestock may impact other natural resources, such as soil and water quality, consideration of the impacts of livestock and any planned management upon these resources must be considered.

The Wildlife Society (TWS) in conjunction with NRCS' Conservation Effects Assessment Project released their joint report on the findings of multiple studies that evaluated the effects of conservation practices on fish and wildlife in September 2007. The findings of the "Fish and Wildlife Response to Farm Bill Conservation Practices," September 2007 and 2000-2005 reports are summarized below and incorporated by reference (40 CFR Part 1502.2) from the reports and Web site at (http://www.nrcs.usda.gov/Technical/nri/ceap/wildlife.html). On this Web site there are numerous other scientific journals and studies further supporting the conservation benefits associated with conservation practices.

Primary Conclusions

- Wildlife consideration in planning conservation practices is the key to achieving wildlife benefits.
- Wildlife response to grass establishment is significant but variable by species, cover, and management.
- Linear practices such as fencing and riparian buffers provide high wildlife use and with proper planning and management, conservation practices can result in substantial landscape biodiversity benefit.
- Wetland establishment practices are associated with substantial wildlife benefit.
- Aquatic conservation practices show to benefit species, but landscape factors must be considered.

Grassland Establishment for Wildlife Conservation

- Change from cropland to grassland use has had a positive influence on grassland wildlife. Grassland bird benefits have been well documented.

- Wildlife response to grassland establishment is a multi-scale phenomenon dependent upon vegetation structure and composition within the planting, practice-level factors such as size and shape of the field and its landscape context, as well as temporal factors such as season and succession.
- Grassland succession makes management an important aspect of wildlife habitat conditions.
- Benefits for a particular species of any management scenario will depend, in part, on the management of surrounding sites and may benefit additional species but exclude others; therefore, the benefits of grassland establishment and management are location and species specific.

Benefits of Farm Bill Grassland Conservation Practices to Wildlife

- Rangeland conservation practices (Prescribed Grazing, Prescribed Burning, Range Planting, and Restoration of Declining Habitats) can provide wildlife benefits.
- Range Planting and Restoration of Declining Habitats have been shown to benefit wildlife, but determining appropriate comparisons can be problematic. Undisturbed grassland ecosystems have greater heterogeneity and diversity, making comparisons between managed and native conditions complex.
- Rangeland practices can be used to maintain, enhance, and restore needed plant communities and habitat conditions.

It is beyond the scope of this Programmatic EA to quantify the potential effects of these kinds of activities on the quality of the biological resource. However, the site-specific EE that is prepared as part of the conservation planning process will take into account this potential impact and provide the means to avoid or mitigate any minor or temporary negative impacts.

Appendix A contains a listing of the most frequently applied conservation practices under GRP, many of which have direct or indirect benefit to the biological resource. Based on this information, it is anticipated that a continuation of GRP under the 2008 Act requirements (Alternative 2) would result in approximately the same number and distribution of practices being applied as under the original 2002 Act requirements.

The general effects of conservation practices, as summarized previously, are incorporated by reference from the CPPE[33] and NHCP.[34] Network Effects Diagrams have also been developed

[33] CPPE (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

[34] National Handbook of Conservation Practices (http://www.nrcs.usda.gov/technical/standards/nhcp.html)

for each of the conservation practices that depict the chain of natural resource effects resulting from their implementation. Network Effects Diagrams are available on the NRCS Web site.[35]

Adaptive Management and Mitigation

As part of NRCS conservation planning and site-specific EE process, NRCS will consult on a State or site-specific level, as needed and appropriate, to ensure GRP program actions do not adversely affect endangered or threatened species, essential fish habitat, or any other protected resources. NRCS will also implement practices in a manner that is consistent with NRCS policy to avoid, mitigate, or minimize adverse effects to the extent feasible.

For example, State Conservationists may invite representatives of the USFWS and the National Marine Fisheries Service (NMFS), as applicable, to State Technical Committee meetings and encourage their involvement in the development of program criteria within the State.

For ESA compliance involving GRP activities, NRCS will also conduct Section 7 interagency consultations at a site-specific level when endangered or threatened species are determined to be present on a property. NRCS will determine whether the proposed action(s) may result in a "no effect," "not likely to adversely affect," or is "likely to adversely affect" endangered or threatened species. Determinations also will be made regarding impacts to designated critical habitats, as appropriate.

If a State has developed a Section 7 Programmatic Consultation, then certain conservation practices may have been determined to be within a category of actions that result in "no effect" or in some cases, a "beneficial effect" to the endangered or threatened species. If so, there would be no need to further consult with USFWS under Section 7 to implement the conservation practice(s). However, it is important to note that the Section 7 Programmatic Consultation that has been concurred by USFWS may delineate reasonable and prudent conservation measures that may need to be implemented in conjunction with conservation practice(s), even for actions determined to have "no effect" to endangered and threatened species.

If the Section 7 Programmatic Consultation determines that the proposed conservation practice(s) is (are) determined to be actions that either are "not likely to adversely affect" or "likely to adversely affect" an endangered or threatened species, then a site-specific Section 7 Programmatic Consultation would be required. This may involve additional analysis and documentation (Biological Assessment and Biological Opinion) and possible issuance of an incidental take permit by USFWS and/or NMFS.

[35] Network Effects Diagrams (http://www.nrcs.usda.gov/programs/ENV_Assess)

4.7 Cultural Resources/Historic Properties

Resource Characterization and Baseline Environment

Cultural resources are not defined in any of the historic preservation legislation nor NEPA; however, the term is used throughout the Federal Government to refer to historic, prehistoric, traditional, aesthetic, and cultural aspects of the human environment (see also the definition of human environment in NEPA). In NRCS, the term is generally used to refer to any historic or archaeological property that has been identified during planning or to refer to "historic properties" as defined by the Advisory Council on Historic Preservation (ACHP) for implementation of Section 106 of the National Historic Preservation Act (NHPA).[36]

Cultural resources that are listed in or eligible for listing in the National Register of Historic Places (National Register) are called historic properties under NHPA, as amended.[37]

Eligibility evaluation criteria for historic properties are defined by the regulations for the NHPA's National Register of Historic Places program[38] and expanded in the ACHP's regulations as: "any prehistoric or historic district, site, building, structure, or object, included on or eligible for inclusion on the National Register of Historic Places." This term includes artifacts, records, and remains that are related to and located within such properties. The term also includes historic and cultural landscapes, properties, and places of traditional and cultural importance to an American Indian Tribe or Native Hawaiian Organization and that meet the National Register criteria.

To be eligible for inclusion in the National Register, a historic property should demonstrate significance in American history architecture, archeology, engineering, and culture and be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- Are associated with events that have made a significant contribution to the broad patterns of our history; or
- Are associated with the lives of persons significant in our past; or
- Embody distinctive characteristics of a type, period, or method of construction; or represent the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may likely yield, information important in prehistory or history.

[36] NHPA, 36 CFR Part 800

[37] 16 U.S.C. 470w, definitions

[38] 36 CFR Part 60.4, criteria for evaluation

Criteria Considerations. Ordinarily, cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of eligible districts.

Evaluating the effects to such historic properties that are protected under Section 106 of the NHPA, and other cultural resources protected under related authorities and NEPA itself, must be addressed under the NEPA process.[39] The regulations that implement Section 106 of the NHPA, requires Federal agencies to consider the effects of proposed actions on properties listed in or eligible for listing in the National Register in consultation with State Historic Preservation Officers (SHPO), American Indian Tribal Governments (and their Tribal Historic Preservation Officers (THPOs), Native Hawaiian Organizations, and other identified consulting parties that have interest in the lands on which the action is to take place. Many cultural resources have been identified and historic properties have been identified and evaluated in advance of construction projects, particularly since the passage of the NHPA. However, many areas, especially in regions that have rural agricultural communities, have never been inventoried to determine what cultural resources and historic properties may be present.

The baseline cultural environment includes a complex and extensive array of historic and prehistoric districts, sites, buildings, structures, landscapes, and objects. This environment encompasses and represents the full timeframe, range, and diversity of human occupation in the United States. These cultural and historical foundations of the Nation are protected, appropriately, as a living part of our community life and heritage development in order to give a sense of place and orientation to all American people.

As Sections 1 and 2 of the National Historic Preservation Act states, "….[protection] of this irreplaceable [human] heritage is in the public interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans…It shall be the policy of the Federal Government, in cooperation with other nations and in partnership with the States, local governments, Indian tribes, and private organizations to…foster conditions under which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations...provide leadership...in partnership with States, Indian Tribes, Native Hawaiians, and local governments…contribute to the preservation of non-Federally owned prehistoric and historic resources and give maximum encouragement to organizations and individuals undertaking preservation by private mean."

This baseline cultural environment may be best protected by identification of its component parts (districts, buildings, structures, sites, and landscapes), consultation with appropriate parties, and

[39] 40 CFR Part 1502.25

treatment through the NEPA and NHPA review processes as a dynamic and adaptive part of our current human environment.

A significant effect on historic properties listed in or eligible for listing in the National Register is one that alters the characteristics that make it eligible for the National Register. Adverse effects are described in 36 CFR 800.45, the ACHP regulations for compliance with Section 106 of the NHPA. Effects may be direct, indirect, or cumulative and must be assessed by qualified historic preservation personnel in consultation with SHPOs, THPOs, and Tribal governments in accordance with the ACHP regulations, and NRCS must make decisions about subsequent actions, if any, in consultation with mandatory consulting partners.

4.7.1 Alternative 1 – No Action – No Implementation of GRP

Under the 2008 Act, GRP land eligibility criteria was expanded to include land that has been historically dominated by grassland, forbs, or shrubland *when it contains historical or archaeological resources;* or it would address issues raised by State, regional, and national conservation priorities. Therefore, under Alternative 1, it is possible that there could be direct and/or indirect impacts to historic properties. If GRP were not implemented, lands that contain historic properties could be adversely impacted due to the lack of knowledge of their presence, significance, and protection under NHPA.

Given that NRCS does conduct site-specific EE's and Section 106 reviews on GRP eligible lands, the lack of such a program and no requirement for a site-specific environmental review could result in inadvertent adverse effect to historic properties by the landowner.

It is beyond the scope of this Programmatic EA to quantify the potential adverse impacts to historic properties due to lack of extant of knowledge concerning the presence or absence of these important heritage resources on private lands.

4.7.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirements

There would be no direct impacts to historic properties associated with implementation of GRP under the 2008 Act. There would be no direct effects from the national rulemaking, but there may be indirect effects from the application of conservation practices implemented through a restoration agreement, if needed.

However, it is likely there will be beneficial indirect effects to historic properties from the conservation planning process and site-specific EE process because some of these important heritage resources would be identified and delineated. The EE and Section 106 review processes should be able to determine the need for consultation with SHPOs, tribes, and THPOs under Section 106 of the NHPA in order to ensure the appropriate measures are taken to address and take into account possible effects to historic properties.

There is the potential for indirect impacts from the application of conservation practices on private and non-Federal lands. However, these indirect impacts would be addressed (avoided, treated, mitigated) and dealt with on a case-by-case basis through the Section 106 compliance process for NHPA. NRCS would ensure compliance with the NHPA Section 106 process and associated authorities through the NRCS State offices following the procedures outlined in the ACHP regulations (36 CFR Part 800) or NRCS' alternate procedures (Nationwide Programmatic Agreement), if applicable. In these agreements, NRCS may invite the SHPOs and federally recognized tribes (or their designated THPOs) to enter into long term consultation agreements that focus review and consultation, in accordance with the requirements stipulated in the Preferred Alternative (Alternative 2).

In cases where there are no State-level agreements or tribal consultation protocols for tribes that have an interest in the GRP project, NRCS must comply with the provisions of the ACHP Section 106 regulations prior to proceeding to implementation of the action.

Even though NRCS will consult on a site-specific level for compliance with Section 106 NHPA and ACHP implementing regulations, it is probable that in general there are several conservation practices that can result in beneficial effects to National Register properties. For example, wind erosion control conservation practices that retard topsoil depletion can also result in beneficial effects (stability) for archaeological sites that are National Register listed or eligible properties. Archaeological sites subject to wind erosion may be deflated into a thin layer, thereby destroying their data or interpretive value. Another example could be the replanting of vegetation through the conservation practice of windbreaks or shelterbelts that may have originally been a contributing element of a farmstead or other property being eligible for or listed in the National Register and, as a result, the replanting might restore the long term integrity of the property.

There is also the likelihood for short term localized indirect negative impacts from conservation practices such as any ground disturbing activities. However, it is important to note that the site-specific EE and NHPA Section 106 compliance review processes would address the appropriate means for mitigating impacts to historic properties.

Adaptive Management and Mitigation

A site-specific EE and Section 106 review and consultation should identify the likely presence or absence of historic properties that need further consideration under NHPA. In such cases, historic preservation professionals who meet the Secretary of Interior's professional qualification standards may need to conduct on-site identification and evaluation studies to determine whether there are or are not historic properties within the area of potential effect. If there are, these same historic preservation professionals must recommend to NRCS whether there will be an effect and if there is, define the nature of the effect; if there is an adverse effect, NRCS must determine whether the undertaking (practice or system) may be moved or modified to avoid effects.

If a historic property is present and would be affected by the proposed practice or system (undertaking), the State Conservationist, SHPO, American Indian Tribes/THPOs, and other consulting parties would consult on the need for project-specific mitigation measures or treatments, including avoidance of adverse effects by slight movement or redesign of the practice or system, if feasible. If there is an adverse effect anticipated, NRCS must submit documentation to the ACHP as part of the Section 106 process. This documentation may include comments from all the consulting parties and a proposed Memorandum of Agreement agreed upon by all the consulting parties that outline the steps that will be taken to avoid, treat, minimize, or mitigate the adverse effects and afford the counsel an opportunity to participate in resolution of any potential adverse effects.

4.8 Human Resources

Resource Characterization and Baseline Environment

Socioeconomic

Socioeconomic analyses generally include detailed investigations of the prevailing population, income, employment, and housing conditions of a community or area of interest. The socioeconomic conditions of a region of influence (ROI) could be affected by changes in the rate of population growth, changes in the demographic characteristics of a ROI, or changes in employment within the ROI caused by the implementation of the proposed action.

The GRP authorizing language continues to emphasize support for grazing operations. Several changes were made regarding payments and limitations in the 2008 Act from the original language in the 2002 Act. There are now separate payment limitations for restoration agreements and rental contracts, a defined fair-market value determination process for easement compensation, and a reduction of the maximum allowable cost-share amount to 50 percent for practices implemented through restoration agreements.

Compensation for easements under the 2008 Act: the Secretary will make easement payments in an amount not to exceed the fair market value of the land less the grazing value of the land encumbered by the easement as determined by an appraisal. In determining the compensation for an easement, the Secretary will pay the lowest of:

- The fair market value of the land encumbered by the easement, as determined by the Secretary;
- The amount corresponding to a geographical cap, as determined by the Secretary in regulations; or
- The offer made by the landowner.

Compensation for rental contracts allows the participant to receive annual payments from the Secretary during the term of the contract in an amount not to exceed 75 percent of the grazing value of the land covered by the contract. A payment limitation was added in the 2008 Act that specifies that a payment amount made under one or more rental contracts to a person may not exceed, in the aggregate, $50,000 per year.

Restoration agreements are only authorized to be used in conjunction with easements and rental agreements. The 2008 Act specifies that the Secretary shall make payments to an owner/operator under a restoration agreement of not more than 50 percent of the costs of carrying out measures and practices necessary to restore functions and values of that land. Payments made under one or more restoration agreements to a person or legal entity, directly or indirectly, may not exceed, in the aggregate, $50,000 per year.

In FY 2005, under the 2002 Act authorizing GRP, a total of $65.8 million of financial assistance was obligated for enrollment and $9.8 million for NRCS and FSA technical assistance costs. The CCC received 7,412 application offers covering 4.9 million grassland acres – well above the initial cap of 2 million acres authorized in the 2002 Act. The estimated value to enroll the entire 4.9 million acres was $980 million. Across the United States, 1,004 participants were enrolled, comprising 384,794 acres.[40]

In determining funding levels under the 2002 Act, USDA chose to select the option that balanced the enrollment for meeting each of the three statutory objectives: protection of grasslands under threat of conversion, support for livestock operations, and enhancing biodiversity because it equally balances the objectives that Congress emphasized in the statute. Congress recognized that grasslands provide many benefits including livestock feed, wildlife habitat, higher quality water for urban and rural uses, flood protection, air purification, carbon sequestration, hunting, and other recreational opportunities. Requiring GRP participants to implement integrated grazing management practices according to an NRCS approved conservation plan sustains forage productivity and soil health, improves air and water quality, and enhances habitat for native plants and animals. GRP provides technical and financial support for enrolled farmers and ranchers in exchange for protecting and enhancing the functions and values of grasslands, including increased biodiversity for native plants and animals. Additional benefits include improvement and protection of aesthetic values, ensuring availability of open space, and enhanced rural social stability and economic vigor.

For this Programmatic EA, socioeconomics impacts would be considered significant if a large percentage of gross income from farming operations was lost due to program changes or the farming operations were unrecoverable due to financial burdens wholly borne by the farm operators due to program changes.

[40] NRCS Benefit/Cost Assessment – Grassland Reserve Program (under the 2002 Act)

Energy

Energy related costs are a significant agricultural operating expense. On-farm energy conservation saves money for the farmer, reduces overall national energy consumption, and reduces air pollution and GHG emissions.

The primary objective of GRP is to protect and restore eligible grasslands through easement purchases and rental agreements with private landowners and operators with an emphasis on maintaining grazing operations and to enhance functions and values of native and naturalized grasslands. As a land use, grasslands require relatively low energy inputs compared with cropping systems, development, etc. Solar energy is converted naturally into forage and browse that can be used for livestock grazing and to benefit fish and wildlife. In this way, communities can also enjoy the benefits of open space, aesthetically pleasant surroundings, and a diverse array of recreational opportunities and livestock grazing opportunities.

Environmental Justice and Civil Rights

The EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires a Federal agency to "make achieving environmental justice part of its mission by identifying and addressing an appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low-income population." A minority population can be defined by race, ethnicity, or a combination of the two classifications.

USDA Departmental Regulations (DR) 5600-002 on Environmental Justice provides detailed "determination procedures" for NEPA, as well as non-NEPA activities and suggests social and economic effects that should be considered when contemplating our actions. DR 4300-4, Civil Rights Impacts Analysis, directs USDA agencies to complete a civil rights impact analysis to identify and address civil rights implication of proposed policy actions. Further, these kinds of activities are specifically considered for all on-site activities for each of the actions when completing the EE procedures as part of all NRCS conservation planning. The following table summarizes assistance to GRP customers based on demographics in FY 2008.

Instances of Assistance by Demographics - All Customers
National - Grassland Reserve Program (38) - FY 2008 - NRCS

Location	Total Individual Customer	No information	White Male Non-Hispanic	White Female Non-Hispanic	Black Male Non-Hispanic	Black Female Non-Hispanic	American Indian Male Non-Hispanic	American Indian Female Non-Hispanic	Asian Male Non-Hispanic	Multiple Races Male Non-Hispanic
National	174	21	123	21	1	1	3	1	2	1
Region:										
Central	87	12	54	13		1	3	1	2	1
East	75	8	59	7	1					
West	12	1	10	1						

4.8.1 Alternative 1 – No Action – No Implementation of GRP

Under Alternative 1, there is anticipated to be an adverse impact on socioeconomic resources locally if GRP were not implemented. GRP provides financial assistance to farmers and ranchers in the form of easements and rental contracts and for the implementation of conservation practices to help maintain, enhance, restore, and improve private and non-Federal grasslands. Without the financial assistance of GRP funds, landowners may not be able to afford to adequately protect the grassland resource, especially through the use of easements and rental contracts. The direct and primary beneficial socioeconomic impact of the program is to provide financial incentives to maintain healthy, in-tact grasslands for the benefit of farm/ranch viability; contribute to community health and well-being; and provide financial assistance to implement conservation practices through a restoration agreement that can also benefit the local economy and help to support livestock grazing operations.

The local community benefits indirectly from the program through the conservation and maintenance of the productive capability of the land through off-site environmental benefits and through the money spent locally. With the assumption that GRP funds are spent in the local community, the local trade and service sector of the economy can be expected to experience some effect in terms of the realization of additional income from sales of products and services. As a result, Alternative 1, without GRP being implemented, would result in potential long term negative impacts to local economies, while potentially increasing energy uses through conversion of existing grassland to other higher-input agricultural enterprises or development.

Under Alternative 1, regarding Civil Rights and Environmental Justice, the status quo would be maintained unless funding for grassland conservation efforts are sought through an alternate Federal, State, or non-governmental source that would emphasize targeted groups.

4.8.2 Alternative 2 – Agency Preferred Alternative – Implementation of 2008 GRP Requirements

Ecological benefits are hard to measure because variables making up the ecology are often interrelated. Improvements to one function often affect others in non-evident ways and can take years or even decades to aggregate or appear. Four inherent grassland characteristics make estimating their benefits difficult. First, grasslands have unique characteristics with their own unique set of values. Second, even though some characteristics may be clearly identified, quantifying the beneficial effect may be problematic. Third, because grasslands also help maintain water and air quality on lands not enrolled in the GRP, fully accounting for all benefits is difficult. Finally, problems associated with identifying specific bio-geochemical grassland benefits and the difficulty in assigning monetary values to these non-market goods and services make it extremely difficult to evaluate using strict monetary benefit-cost techniques. Regardless of whether many grassland benefits can be adequately quantified, their importance is still recognized.

1) Benefits of Delaying or Preventing Grassland Conversion

Much of GRP's ecological benefits stems from the value society places on delaying or avoiding grassland conversions. Care must be taken in attributing these benefits to land solely because it is enrolled in GRP. If GRP enrollment simply results in the conversion of other non-enrolled grasslands to other uses, then little is accomplished. On the other hand, if grasslands with unique and highly valued qualities (e.g., native grasslands, including native prairie) are enrolled and protected from conversion, GRP enrollments provide ecological benefits. Native grasslands are variable in their quality and characteristics. Identifying and selecting ecologically significant and unique grasslands maximizes GRP's ability to secure many of the environmental benefits grasslands provide.

Converting cropland to permanent vegetation provides many ecological functions and values. Each year that grassland is not converted to development or more intensive agricultural use, these benefits are maintained. For example, CRP is estimated to provide annual wildlife-related benefits of $30 per acre (FSA, 2003). While GRP enrollment may be targeted to lands threatened with conversion, it is difficult to determine whether conversion is actually delayed or prevented.

2) Forage Production Increase

Modification of grazing practices and implementation of grazing management plans can often increase forage production. Based on the Agricultural Research Service data (Spaeth, 2000), improved grassland management could provide an estimated 1,013 additional pounds of forage per acre per year. This translates into about 1.3 animal unit months (AUMs) per acre.

3) Environmental Benefits

Participants are required to implement and maintain an NRCS-approved conservation plan that includes a grazing management plan on grasslands enrolled in the GRP. Healthy grasslands serve a myriad of conservation functions and values including:

- Increased rate of water infiltration, enhancing vegetative production and biodiversity;
- Reduction in surface runoff reducing sedimentation to water bodies, thereby reducing the amount of pollutants downstream and enhancing recreational activities;
- Reduction of soil erosion, thereby enhancing soil stability and productive capacity of the land;
- Increase in carbon sequestration, thereby ameliorating effects of climate change;
- Increase in habitat for the various life-stage needs of a large number of fish and wildlife species, including declining species and habitats. Slowing losses of grassland habitats help to reduce the precipitous decline of fish and wildlife species of concern;
- Increase in recreational activities associated with wildlife observation activities, hunting, fishing, etc., as well as opportunities for agricultural enterprise diversification associated with these kinds of activities;
- Increase in the overall quality of life to the community as a result of all of these environmental benefits; and
- Low-input energy use inherent to grazing operations on native and naturalized grasslands.

It is beyond the scope of this Programmatic EA to quantify the potential effects of these kinds of activities on the quality of the biological resource. However, the site-specific EE that is prepared as part of the conservation planning process will take into account this potential impact and provide the means to avoid or mitigate any minor or temporary negative impacts.

Adaptive Management and Mitigation

As part of the NRCS conservation planning process and GRP contract/easement development process, a site-specific EE is conducted. As part of this process, any unintended adverse effects to human resources, including socioeconomic considerations (including civil rights and environmental justice) are identified and addressed. Adaptive management is an integral part of the NRCS conservation planning process. NRCS staff conducts followup on all active contracts/easements to ensure these requirements have been adequately addressed throughout the life of the contract/easement.

4.9 Cumulative Effects

CEQ regulations[41] stipulate that a cumulative effects analysis be conducted to consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency or person undertakes such other actions." Cumulative effects most likely arise when a relationship exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. An action which overlaps with or is in proximity to other proposed actions would be expected to have more potential for a cumulative effect relationship than actions that are more geographically separated. Similarly, actions that coincide, even partially, in time tend to have potential for cumulative effects.

Cumulative impacts have been identified on the Network Effects Diagrams for NRCS conservation practices. Individual practices, systems of practices, and combined systems of practices result in cumulative effects upon soil, water, air, plants, animals, energy, and humans. Soil erosion reductions are additive. Improvements in water quality are produced by a variety of practices on all land uses. Plant productivity increases from the application of a variety of practices on cropland, pastureland, and forest land. Wildlife benefits occur from practices on all land uses. Farm income stability, community economic returns, and often human health and safety increase cumulatively, as well when conservation practices are applied across the landscape.

Additional cumulative impacts from other Federal, State, tribal, and local entities might result from:

- Regulatory mandates and statutory requirements;
- Technical assistance provided by NRCS without financial assistance; and
- Financial and technical assistance provided through other conservation programs.

The cumulative total of environmental benefits associated with implementation of conservation practices with NRCS financial and technical assistance is difficult to measure and will vary depending upon the location and timing of practice application across the landscape. Overall, the practices do have a cumulative positive benefit to the environment both on and off site. These cumulative benefits can be enhanced by targeted financial assistance which focuses assistance in specific geographic areas or on priority resource concerns as will be done in GRP.

[41] 40 CFR Part 1508.7

Other Federal and State Conservation Assistance Programs

In addition to GRP, there are a number of other voluntary conservation programs that help to conserve, enhance, protect, and improve private and non-Federal grasslands. A brief overview of the relevant Federal programs is provided below. Other programs described below could be used on the same or adjacent tracts of agricultural and forestry lands and therefore, may result in overlapping cumulative effects.

Other Farm Bill Programs

The Conservation Reserve Program (CRP)/Conservation Reserve Enhancement Program (CREP) are designed to establish vegetative cover on environmentally sensitive lands. These programs have also been characterized as land idling programs, designed to idle existing cropland for varying amounts of time. The intent of the programs is to retire marginally productive lands that also contribute significant amounts of pollutants to surface waters when used for agricultural production or provide significant wildlife benefits if idled with appropriate vegetative cover, or both. Land enrolled in CRP/CREP is eligible for GRP after the CRP/CREP contract expires.

The Wetlands Reserve Program (WRP) offers incentives to landowners to enhance and restore degraded wetlands in exchange for retiring marginal land from agricultural production. A limited amount of adjacent land can be included as a buffer. Three options are offered to landowners: a permanent easement, a 30-year easement, and a restoration cost-share agreement only. Lands enrolled under the permanent easement option are not eligible for enrollment in GRP. Impacts of the program include an immediate payment to the successfully enrolled landowner; a reduction in the production of agricultural commodities; improved wildlife habitat, especially for those species specifically associated with wetland environments; and other wetland functions and values.

The Farm and Ranch Lands Protection Program (FRPP) helps farmers keep their land in agricultural use and protect associated conservation values. The program achieves this by purchasing conservation easements that essentially buy up development rights from the landowners. The landowners also agree to implement a conservation plan for any highly erodible land contained in the easement area. This program not only retains farmland in agricultural uses, but also maintains green space in areas subject to development pressures.

The Healthy Forest Reserve Program (HFRP) helps forest land owners to restore, enhance, and protect forest lands. The purposes of the program are to promote the recovery of threatened and endangered species, improve biodiversity, and enhance carbon sequestration. Like WRP, landowners are offered a variety of easement options, as well as an option for a cost-share agreement only, and financial assistance is provided to implement practices needed to achieve the purposes of the program.

The Environmental Quality Incentives Program (EQIP) provides financial and technical assistance to landowners and operators to address resource concerns on working agricultural and forestry lands. It is anticipated that EQIP may be used by GRP participants to address their conservation needs as part of their restoration plans.

The Wildlife Habitat Incentives Program (WHIP) is designed to create high quality wildlife habitats. Special priority is given to projects that support wildlife species of Federal, State, local, or tribal importance. Privately owned agricultural lands, nonindustrial private forest lands, and tribal lands are eligible. The major impact of the program is the creation of habitat for species of importance in each State. The majority of projects have been involved with improving upland wildlife habitats.

State and Private Forestry Programs (S&PF) are offered through the U.S. Forest Service's S&PF mission area. Expert advice, technology, and financial assistance are provided to help landowners and resource managers sustain the Nation's forests and protect communities and the environment from wildland fires.

Through grants and cooperative agreements, State forestry agencies and other partners deliver the majority of this landowner assistance through three S&PF "umbrella" program areas that receive annual Federal appropriations: Forest Health Management, Cooperative Fire Protection, and Cooperative Forestry. Forest Health Management assistance includes conducting suppression, prevention, and management activities on native and non-native insect and disease forest pests and invasive plants.

Unavoidable Adverse Impacts

The proposed action (Alternative 2) is not anticipated to cause any direct adverse effects on any resources due to the action of national rulemaking or to the implementation of GRP under the 2008 statutory requirements. The action is not anticipated to result in any indirect or cumulative adverse effects on any resources from the purchase of easements/rental contracts or implementation of conservation practices which are designed to enhance, protect, mitigate, and improve grassland resource issues.

NRCS policy requires that conservation plans mitigate and avoid adverse environmental impacts to environmental resources. Some resources could experience minor short term negative and localized impacts from the implementation and construction of certain conservation practices, as described in previous sections, but these impacts would be identified through the site-specific EE process and mitigated through selection of alternative conservation practices or selection of other conservation practices to further mitigate resource concerns.

The conservation planning process and financial assistance provided to producers for implementation of conservation practices would mitigate the potential adverse environmental effects that existed on the landowners site associated with agricultural operations, and the

conservation planning process should result in the selection of environmentally superior alternatives (40 CFR Part 1502.16). Any potential impacts from the construction and implementation of conservation practices would be considered short term and minor. The conservation practices implemented would reduce any minor or moderate adverse effects from agricultural operations, and the conservation planning process should result in beneficial impacts to environmental resources.

4.10 Relationship of Short Term Uses and Long Term Productivity

The proposed action (Alternative 2) may, in general, affect short term impacts to the resource concerns previously discussed because of short term construction and implementation activities. However, the short term impacts and uses would lead to long term environmental benefits. The long term productivity would result from conservation planning efforts (explained in Section 1.0) designed to promote habitat restoration; prevent land fragmentation; improvement to air, water, and soil quality; and indirectly from public education on conservation planning and programs. The NRCS conservation planning process and completion of the EE take into account all potential impacts, both short and long-term, and provide means by which to avoid or mitigate any minor or temporary negative impacts to the human environment.

4.11 Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effect that the use of these resources has on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. For the proposed action, the use of gasoline for operating equipment would be the only irreversible or irretrievable resource commitment expected from the implementation of the proposed action. In fact, GRP would reduce the potential for irreversible losses of grasslands converted from open space or agricultural use to industrial or urban development.

5.0 PERSONS AND AGENCIES CONSULTED

As summarized in Section 3.2, 52 Farm Bill Forums were held throughout the United States, while others submitted comments through the mail and through the NRCS Web site. For information regarding these activities, see:
http://www.fas.usda.gov/info/factsheets/FB2007/farmbill2007forums.asp

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6.0 APPENDICES

Appendix A – Most Commonly Used GRP Conservation Practices (FY 2003-2008)

CONSERVATION PRACTICES	UNITS IMPLEMENTED		
	FY 2007	**FY 2008**	**Total – FY 2003 - 2008**
Access Road (560) (ft)	4,300	0	6,940
Animal Trails and Walkways (575) (ft)	485	125	6,492
Brush Management (314) (ac)	1,661	809	9,052
Conservation Cover (327) (ac)	129	63	1,714
Early Successional Wildlife Habitat (647) (ac)	85	162	1,915
Fence (382) (ft)	136,448	67,055	545,845
Forage Harvest Management (511) (ac)	2,153	1,416	31,918
Forest Stand Improvement (666) (ac)	5	26	217
Heavy Use Area Protection (561) (ac)	49	16	292
Irrigation Water Management (449) (ac)	0	0	3,167
Nutrient Management (590) (ac)	3,893	4,274	34,015
Pasture and Hay Planting (512) (ac)	1,132	287	4,231
Pest Management (595) (ac)	12,706	10,634	73,771
Pipeline (516) (ft)	15,028	11,880	59,927
Pond (378) (no)	2	0	30
Prescribed Burning (338) (ac)	80	7,355	9,084
Prescribed Grazing (528, 528A) (ac)	53,681	33,340	409,345
Restoration and Management of Rare and Declining Habitats (643) (ac)	643	68	19,389
Upland Wildlife Habitat Management (645) (ac)	58,018	15,333	200,676
Use Exclusion (472) (ac)	127	2	2,716
Waste Utilization (633) (ac)	0	0	566
Water Well (642) (no)	1	1	5
Watering Facility (614) (no)	60	46	210
Wetland Wildlife Habitat Management (644) (ac)	351	0	427

Appendix B – National Resource Concerns and Quality Criteria

Resource Concern	*Description of Concern*	*National Quality Criteria*
Soil Erosion - Sheet and Rill	Detachment and transport of soil particles caused by rainfall splash and runoff degrade soil quality.	Sheet and rill erosion does not exceed the Soil Loss Tolerance "T".
Soil Erosion - Wind	Detachment and transport of soil particles caused by wind degrade soil quality and/or damage plants.	Wind erosion does not exceed the Soil Loss Tolerance "T" or, for plant damage, does not exceed Crop Damage Tolerances.
Soil Erosion - Ephemeral Gully	Small channels caused by surface water runoff degrade soil quality and tend to increase in size. On cropland, they can be obscured by heavy tillage.	Surface water runoff is controlled sufficiently to stabilize the small channels and prevent reoccurrence of new channels.
Soil Erosion - Classic Gully	Deep, permanent channels caused by the convergence of surface runoff degrade soil quality. They enlarge progressively by head-cutting and lateral widening.	Surface water runoff is controlled sufficiently to stop progression of head-cutting and widening.
Soil Erosion - Streambank	Accelerated loss of streambank soils restricts land and water use and management.	Accelerated streambank soil loss does not exceed a level commensurate with upstream land use and normal geomorphological processes on site.
Soil Erosion - Shoreline	Soil is eroded along shorelines by wind and wave action, causing physical damage to vegetation, limiting land use, or creating a safety hazard.	Shoreline erosion is stabilized to a level that does not restrict the use or management of adjacent land, water, or structures.
Soil Erosion – Irrigation-induced	Improper irrigation water application and equipment operation are causing soil erosion that degrades soil quality.	Irrigation-induced erosion does not exceed the Soil Loss Tolerance "T".
Soil Erosion - Mass Movement	Soil slippage, landslides, or slope failure, normally on hillsides, result in large volumes of soil movement.	Shallow slumps, slides, or slips are prevented or minimized so that the mass movement of soil material does not exceed naturally occurring rates.
Soil Erosion – Road, road sides, and Construction Sites	Soil loss occurs on areas left unprotected during or after road building and/or construction activities.	Sites are adequately protected from soil loss during and after road building and construction activities.
Soil Condition - Organic Matter Depletion	Soil organic matter has or will diminish to a level that degrades soil quality.	Soil Conditioning Index is positive.
Soil Condition - Rangeland Site Stability	The capacity to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water.	Indicators of Rangeland Health Attribute rating for Soil/Site Stability show Slight to Moderate or less departure from Ecological Reference Sheet (ESD).

Resource Concern	*Description of Concern*	*National Quality Criteria*
Soil Condition - Compaction	Compressed soil particles and aggregates caused by mechanical compaction adversely affect plant-soil-moisture relationships.	Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement.
Soil Condition - Subsidence	Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive drainage or extended drought.	The timing and regime of soil moisture is managed to attain acceptable subsidence rates.
Soil Condition - Contaminants - Salts and Other Chemicals	Inorganic chemical elements and compounds such as salts, selenium, boron, and heavy metals restrict the desired use of the soil or exceed the soil buffering capacity.	Salinity levels cause less than a 10 percent decrease in plant yield. Other contaminants do not exceed plant tolerances or are below toxic levels for plants or animals.
Soil Condition – Contaminants: Animal Waste, and Other Organics – N	Nitrogen nutrient levels from applied animal waste and other organics restrict desired use of the land.	Nitrogen nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.
Soil Condition – Contaminants: Animal Waste, and Other Organics – P	Phosphorus nutrient levels from applied animal waste and other organics restrict desired use of the land.	Phosphorus nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.
Soil Condition – Contaminants: Animal Waste, and Other Organics – K	Potassium nutrient levels from applied animal waste and other organics restrict desired use of the land.	Potassium nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.
Soil Condition – Contaminants: Commercial Fertilizer – N	Over application of nitrogen degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of nitrogen do not exceed crop needs based on realistic yield goals, and appropriate pH levels are maintained.
Soil Condition – Contaminants: Commercial Fertilizer – P	Over application of phosphorus degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of phosphorus do not exceed crop needs based on realistic yield goals, and appropriate pH levels are maintained.
Soil Condition – Contaminants: Commercial Fertilizer – K	Over application of potassium degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of potassium do not exceed crop needs based on realistic yield goals, and appropriate pH levels are maintained.
Soil Condition - Contaminants - Residual Pesticides	Residual pesticides in the soil have an adverse effect on non-target plants and animals.	Pesticides are applied, stored, handled, and disposed of so that residues in the soil do not adversely affect non-target plants and animals.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Soil Condition - Damage from Sediment Deposition	Sediment deposition damages or restricts land use/management or adversely affects ecological processes.	Sediment deposition is sufficiently reduced to maintain desired land use/management and ecological processes.
Water Quantity - Rangeland Hydrologic Cycle	The capacity to capture, store, and safely release water from rainfall, run-on, and snowmelt (where relevant).	Indicators of Rangeland Health Attribute rating for Hydrologic Cycle are Slight to Moderate or less departure from Ecological Reference Sheet.
Water Quantity - Excessive Seepage	Subsurface water oozing to the surface restricts land use and management.	Subsurface water is managed to limit periods of saturation that are unfavorable to the present or intended land use. Management complies with wetland policies.
Water Quantity - Excessive Runoff, Flooding, or Ponding	The land becomes inundated restricting land use and management.	Excess water amounts and/or rates of flow are controlled consistent with desired present or intended land use goals and wetland policies.
Water Quantity - Excessive Subsurface Water	Water saturates upper soil layers restricting land use and management.	Subsurface water is managed to limit periods of saturation compatible with the present or intended land use and wetland policies.
Water Quantity - Drifted Snow	Wind-blown snow deposits and accumulates around and over surface structures restricting ingress, egress and conveyance of humans and animals.	Snowdrifts are reduced or prevented to allow ingress, egress, and conveyance of humans and animals.
Water Quantity - Inadequate Outlets	Natural or constructed outlets too small to remove excess water in a timely manner.	Outlets are designed, installed, upgraded or maintained to adequately convey water for present or intended uses.
Water Quantity - Inefficient Water Use on Irrigated Land	Limited water supplies are not optimally utilized.	Land and water management is planned and coordinated to provide optimal use of natural and applied moisture.
Water Quantity - Inefficient Water Use on Non-irrigated Land	Natural moisture is not optimally utilized.	Management provides optimum use of natural moisture for the present or intended land use.
Water Quantity - Reduced Capacity of Conveyances by Sediment Deposition	Sediment deposits in ditches, canals, culverts, and other water conveyances reduce the desired flow capacity.	Conveyance structures are upgraded or maintained to adequately convey water for present or intended uses.
Water Quantity -Reduced Storage of Water Bodies by Sediment Accumulation	Sediment deposits in water bodies reduce the desired volume capacity.	Water bodies and contributing source areas are treated to allow sufficient water storage for present and intended uses.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Water Quantity - Aquifer Overdraft	Water withdrawals exceed recharge rates.	Land and water management are coordinated to conserve aquifer water levels.
Water Quantity – Insufficient Flows in Water Courses	Water flows are not consistently available in sufficient quantities to support ecological processes and land use and management.	Authorized uses and management of water are coordinated to minimize the impacts on water course flows.
Water Quality - Harmful Levels of Pesticides in Groundwater	Residues resulting from the use of pest control chemicals degrade groundwater quality.	Pesticides are applied, stored, handled, disposed of, and managed so that groundwater uses are not adversely affected.
Water Quality - Excessive Nutrients and Organics in Groundwater	Pollution from natural or human induced nutrients such as N, P, S (including animal and other wastes) degrades groundwater quality.	Nutrients and organics are stored, handled, disposed of, and applied such that groundwater uses are not adversely affected.
Water Quality - Excessive Salinity in Groundwater	Pollution from salts such as Ca, Mg, Na, K, HCO3, CO3, Cl, and SO4 degrades groundwater quality.	Salts are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected.
Water Quality - Harmful Levels of Heavy Metals in Groundwater	Natural or human induced metal pollutants present in toxic amounts degrade groundwater quality.	Materials containing heavy metals are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected.
Water Quality - Harmful Levels of Pathogens in Groundwater	Kinds and numbers of viruses, protozoa, and bacteria are present at a level that degrades groundwater quality.	Materials that harbor pathogens are stored, handled, disposed of, applied, and managed such that groundwater uses are not adversely affected.
Water Quality - Harmful Levels of Petroleum in Groundwater	Fuel, oil, gasoline, and other hydrocarbons present in toxic amounts degrade groundwater quality.	Petroleum products are used, stored, handled, disposed of, and managed such that groundwater uses are not adversely affected.
Water Quality - Harmful Levels of Pesticides in Surface Water	Pest control chemicals present in toxic amounts degrade surface water quality.	Pesticides are applied, stored, handled, disposed of, and managed such that surface water uses are not adversely affected.
Water Quality - Excessive Nutrients and Organics in Surface Water	Pollution from natural or human induced nutrients such as N, P, S (including animal and other wastes) degrades surface water quality.	Nutrients and organics are stored, handled, disposed of, and managed such that surface water uses are not adversely affected.
Water Quality - Excessive Suspended Sediment and Turbidity in Surface Water	Pollution from mineral or organic particles degrades surface water quality.	Movement of mineral and organic particles is managed such that surface water uses are not adversely affected.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Water Quality - Excessive Salinity in Surface Water	Pollution from salts such as Ca, Mg, Na, K, HCO3, HCO3, CO3, Cl, and SO4 degrades surface water quality.	Salts are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected.
Water Quality - Harmful Levels of Heavy Metals in Surface Water	Natural or human induced metal pollutants are present in toxic amounts that degrade surface water quality.	Materials containing heavy metals are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected.
Water Quality - Harmful Temperatures of Surface Water	Undesired thermal conditions degrade surface water quality.	Use and management of land and water are coordinated to minimize impacts on surface water temperatures.
Water Quality - Harmful Levels of Pathogens in Surface Water	Kinds and numbers of viruses, protozoa, and bacteria are present at a level that degrades surface water quality.	Materials that harbor pathogens are stored, handled, disposed of, applied, and managed such that surface water uses are not adversely affected.
Water Quality - Harmful Levels of Petroleum in Surface Water	Fuel, oil, gasoline, and other hydrocarbons present in toxic amounts degrade surface water quality.	Petroleum products are used, stored, handled, and disposed of such that groundwater uses are not adversely affected.
Air Quality – Particulate matter less than 10 micrometers in diameter (PM 10)	Particulate matter less than 10 micrometers in diameter are suspended in the air causing potential health hazards to humans and animals.	Land use and management operations comply with PM 10 requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations.
Air Quality - Particulate matter less than 2.5 micrometers in diameter (PM 2.5)	Particulate matter less than 2.5 micrometers in diameter are suspended in the air causing potential health hazards to humans and animals.	Land use and management operations comply with PM 2.5 requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations.
Air Quality - Excessive Ozone	High concentrations of ozone (O3) are adversely affecting human health, reducing plant yields, and leading to the creation of smog.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations.
Air Quality - Excessive Greenhouse Gas – CO2 (carbon dioxide)	Increased CO2 concentrations are adversely affecting ecosystem processes.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Air Quality - Excessive Greenhouse Gas – N2O (nitrous oxide)	Increased N2O concentrations are adversely affecting ecosystem processes.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations.
Air Quality - Excessive Greenhouse Gas – CH4 (methane)	Increased CH4 concentrations are adversely affecting ecosystem processes.	Land use and management operations comply with requirements of the State or Federal Implementation Plan and all applicable Federal, tribal, State, and local regulations.
Air Quality - Ammonia (NH3)	Animal waste and inorganic commercial fertilizers emit ammonia that contributes to odor, is a PM2.5 precursor, and contributes to acid rain.	Land use and management operations comply with requirements of all applicable Federal, tribal, State, and local regulations.
Air Quality - Chemical Drift	Materials applied for pest control drift downwind and contaminate/injure non-targeted fields, crops, soils, water, animals and humans.	Land use and management operations comply with all applicable Federal, tribal, State, and local regulations and applicable label directions.
Air Quality - Objectionable Odors	Land use and management operations produce offensive smells.	Odor-producing facilities and activities are planned and sited to mitigate potential nuisance impacts and meets all applicable tribal, State, and local regulations.
Air Quality - Reduced Visibility	Sight distance is impaired due to airborne particles causing unsafe conditions and impeded viewing of natural vistas especially in Class I viewing areas (primarily national parks and monuments).	Land use and management operations comply with all applicable Federal, tribal, State, and local regulations including State and local smoke and/or burn management plans.
Air Quality - Undesirable Air Movement	Wind velocities (too little or too much) reduce animal or plant productivity, impact human comfort, and increase energy consumption.	Devices and practices are sited and planned to mitigate excess or deficient air movement.
Air Quality - Adverse Air Temperature	Air temperatures (too cold or too hot) reduce animal or plant productivity, impact human comfort, and increase energy consumption.	Devices and practices are planned and sited to mitigate temperature extremes.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Plants not adapted or suited	Plants are not adapted and/or suited to site conditions or client objectives.	Selected plants are adapted to the soil and climatic conditions or the site is modified to make it suitable for the desired plants. Plants are sustainable, do not negatively impact other resources, and meet client objectives. For specific land uses, additional criteria apply. Cropland: A healthy stand with vigorous growth, yields 75 percent of client expectations; Rangeland: Plants on or planned for the site are listed in applicable Ecological Site Descriptions; Pastureland: Plants on or planned for the site have a site adaptation score greater than 3 using Pasture Condition Scoring and are listed in applicable Forage Suitability Groups reports; Hayland: Plants on or planned for the site are listed in applicable Forage Suitability Groups reports; Forestland/Agroforest: Plants on or planned for the site are listed in Ecological Site Descriptions.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Plant – Condition – Productivity, Health, and Vigor	Plants do not produce the yields, quality, and soil cover to meet client objectives.	Selected plants on or planned for the site are sufficiently productive to meet or exceed client needs. For specific land uses, additional criteria apply. Cropland: A healthy stand with vigorous growth produces at least 75 percent of site potential; Rangeland: The plant community has a similarity index of at least 60 percent or an upward trend for similarity indices less than 60 percent; Pastureland: Forage yields are at least 75 percent of high management estimates cited in Forage Suitability Groups reports; Hayland: Forage yields at least 75 percent of high management estimates cited in Forage Suitability Groups reports; Forestland/Agroforest: Forests consist of healthy stands with vigorous growth having a stand density within 25 percent of optimum stocking on a stems/acre basis. Plants chosen for agroforest applications are consistent with Conservation Tree and Shrub Groups listings and height performance.
Plant Condition – Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act	The site includes individuals, habitat, or potential habitat for one or more plant species listed or proposed for listing under the Endangered Species Act.	Populations and/or habitats of Threatened and Endangered plant species are managed to maintain, increase, or improve current populations, health, or sustainability.
Plant Condition – Threatened or Endangered Plant Species: Declining Species, Species of Concern	The site includes individuals, habitat, or potential habitat for one or more plant species that the State or Tribal government with jurisdiction, or the State Technical Committee has identified as a species of concern. This includes plant species that have been identified as candidates for listing under the Endangered Species Act.	Populations and/or habitats of plant species of concern are managed to maintain, increase, or improve current populations, health, or sustainability.
Plant Condition - Noxious and Invasive Plants	The site has noxious or invasive plants present.	The site is managed to control noxious and invasive plants and to minimize their spread.
Plant Condition - Forage Quality and Palatability	Plants do not have adequate nutritive value or palatability for the intended use.	Forage plants are managed to produce the desired nutritive value and palatability for the intended use.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Plant Condition – Wildfire Hazard	The kinds and amounts of fuel loadings (plant biomass) pose risks to human safety, structures, and resources should wildfire occur.	Fuel loadings are reduced and/or isolated to meet client needs in minimizing the risk and incidence of wildfire.
Fish and Wildlife - Inadequate Food	Quantity and quality of food is unavailable to meet the life history requirements of the species or guild of species of concern.	Food availability meets the life history requirements of the species or guild of species of concern.
Fish and Wildlife – Inadequate Cover/Shelter	Cover/shelter for the species of concern is unavailable or inadequate. For aquatic species, this includes lack of hiding, thermal, and/or refuge cover.	The ecosystem or habit types support the necessary plant species in the kinds, amounts, and physical structure; and the connectivity of fish and wildlife cover is adequate to support, over time, the species of concern.
Fish and Wildlife – Inadequate Water	The quantity and quality of water is unacceptable for the species of concern.	The quantity and quality of water meets the life history requirements of the species of concern.
Fish and Wildlife – Inadequate Space	Lack of area and fragmentation of areas disrupt life history requirements of the species of concern.	Adequate area and connectivity of areas meet life history requirements of the species of concern. (Examples: staging areas for rest and feeding, lekking areas for breeding, and migratory movement corridors.)
Fish and Wildlife – Habitat Fragmentation	Habitat has insufficient structure, extent, and connectivity to provide ecological functions and/or achieve management objectives.	Fish and wildlife habitats are connected and are maintained sufficiently to support the species or guild of species of concern.
Fish and Wildlife - Imbalance Among and Within Populations	Populations are not in proportion to available quantities and qualities of food (plants, predator/prey), cover/shelter, water, and space and other life history requirements.	Land and water use and management are consistent with direct population management activities conducted by fish and wildlife agencies.
Fish and Wildlife – Threatened and Endangered Fish and Wildlife Species: Fish and Wildlife Species Listed or Proposed for Listing under the Endangered Species Act	The site includes individuals, habitat, or potential habitat for one or more fish or wildlife species listed or proposed for listing under the Endangered Species Act.	Populations and/or habitats of Threatened and endangered fish and wildlife species and/or habitats they occupy are managed to maintain, increase, or improve current populations, health, or sustainability.

Resource Concern	*Description of Concern*	*National Quality Criteria*
Fish and Wildlife – Threatened and Endangered Species: Declining Species, Species of Concern	The site includes individuals, habitat, or potential habitat for one or more fish or wildlife species that the State or Tribal government with jurisdiction, or the State Technical Committee, has identified as a species of concern. This includes fish and wildlife species that have been identified as candidates for listing under the Endangered Species Act.	Populations and/or habitats of fish and wildlife species of concern are managed to maintain, increase, or improve current populations, health, or sustainability.
Domestic Animals – Inadequate Quantities and Quality of Feed and Forage	Total feed and forage is insufficient to meet the nutritional and production needs of the kinds and classes of livestock.	Feed and forage including supplemental nutritional requirements are provided to meet production goals for the kinds and classes of livestock. Native grazers are factored into the total feed and forage balance computations.
Domestic Animals – Inadequate Shelter	Livestock are not protected sufficiently to meet the production goals for the kinds and classes of livestock.	Artificial and/or natural shelter is provided to meet production goals for the kinds and classes of livestock.
Domestic Animals – Inadequate Stock Water	The quantity, quality, and distribution of drinking water is insufficient to meet the production goals for the kinds and classes of livestock.	Sufficient water of acceptable quality is provided and adequately distributed to meet production goals for the kinds and classes of livestock. To reduce potential for water contamination, watering facilities are constructed or modified to minimize mortality to indigenous wildlife.
Domestic Animals - Stress and Mortality	Animals exhibit illness or death from disease, parasites, insects, poisonous plants, or other factors.	Land and water use and management are consistent with activities conducted to alleviate stress and mortality factors.

Appendix C - Common NRCS Conservation Practices Used to Address Resource Concerns

Resource Concern	Conservation Practices To Address Concern
Soil	
Soil Erosion – Sheet and Rill	Alley Cropping (311); Conservation Cover (327); Contour Buffer Strips (332); Contour Farming (330); Contour Orchard and Other Fruit Area (331); Cover Crop (340); Critical Area Planting (342); Heavy Use Area Protection (561); Mulching (484); Pasture And Hay Planting (512); Prescribed Grazing (528); Range Planting (550); Residue Management (329, 344, 345, 346); Row Arrangement (557); Strip-cropping (585); Terrace (600); Vegetative Barriers (601)
Soil Erosion - Wind	Alley Cropping (311); Conservation Cover (327); Cover Crop (340); Critical Area Planting (342); Cross Wind Ridges (589A); Field Border (386); Heavy Use Area Protection (561); Herbaceous Wind Barriers (603); Mulching (484); Pasture and Hay Planting (512); Prescribed Grazing (528); Range Planting (550); Residue Management (329, 344, 345, 346); Surface Roughening (609); Strip-cropping (585); Windbreak Shelterbelt Establishment and Renovation (380, 650)
Soil Erosion –Ephemeral and Classic Gully	Alley Cropping (311); Cover Crop (340); Critical Area Planting (342); Diversion (362); Field Border (386); Grade Stabilization Structure (410); Grassed Waterway (412); Heavy Use Area Protection (561); Lined Waterway or Outlet (468); Mulching (484); Pasture And Hay Planting (512); Precision Land Forming (462); Prescribed Grazing (528); Range Planting (550); Roof Runoff Structure (558); Strip-cropping (585); Terrace (600); Tree and Shrub Establishment (612); Underground Outlet (620); Water and Sediment Control Basin (638); Vegetative Barriers (601)
Soil Erosion – Streambank and Shoreline	Access Control (472); Channel Bank Vegetation (322); Channel Stabilization (584); Critical Area Planting (342); Fence (382); Fish Passage (396); Grade Stabilization Structure (410); Heavy Use Area Protection (561); Prescribed Grazing (528); Riparian Forest Buffer (391); Riparian Herbaceous Cover (390); Stream Crossing (578); Stream Habitat Improvement (395); Streambank And Shoreline Protection (580); Watering Facility (614)
Soil Erosion – Irrigation Induced	Aboveground Multi-Outlet Pipeline (431); Irrigation Water Conveyance (430); Irrigation Water Management (449); Irrigation Land Leveling (464); Mulching (484); Residue Management (329, 344, 345, 346); Row Arrangement (557)
Soil Condition – Organic Matter Depletion	Conservation Cover (327); Conservation Crop Rotation (328); Cover Crop (340); Critical Area Planting (342); Mulching (484); Pasture And Hay Planting (512); Prescribed Grazing (528); Range Planting (550); Residue Management (329, 344, 345, 346); Silvopasture Establishment (381); Stripcropping (585); Tree And Shrub Establishment (612); Waste Utilization (633); Windbreak Shelterbelt Establishment And Renovation (380, 650)

Resource Concern	Conservation Practices To Address Concern
Soil	
Soil Condition – Compaction	Access Control (472); Conservation Cover (327); Critical Area Planting (342); Deep Tillage (324); Grazing Land Mechanical Treatment (548); Prescribed Grazing (528); Range Planting (550); Residue Management (329, 344, 345, 346)
Soil Condition – Contaminants (Salts, Pesticides and Other Chemicals)	Agrichemical Handling Facility (309); Conservation Crop Rotation (328); Field Border (386); Filter Strip (393); Irrigation System, Sprinkler (442); Irrigation Water Management (449); Nutrient Management (590); Pasture and Hay Planting (521); Pest Management (595); Salinity and Sodic Soil Management (610); Subsurface Drain (606)
Soil Condition – Nutrient Cycling (Animal Manures and Other Organics, Commercial Fertilizer)	Agrichemical Handling Facility (309); Alley Cropping (311); Conservation Cover (327); Conservation Crop Rotation (328); Feed Management (592); Nutrient Management (590); Pasture and Hay Planting (521); Prescribed Grazing (528); Waste Storage Facility (313); Waste Treatment Lagoon (359)
Water	
Water Quantity: Excessive Water	Cover Crop (340); Dam (402); Dam, Diversion (348); Dike (356); Diversion (362); Drainage Water Management (554); Grassed Waterway (412); Hillside Ditch (423); Land Smoothing (466); Lined Waterway Or Outlet (468); Open Channel (582); Precision Land Forming (462); Pumping Plant (533); Spring Development (574);Surface Drainage, Field Ditch (607); Surface Drainage, Main or Lateral (608); Structure For Water Control (587); Subsurface Drain (606); Underground Outlet (620); Water and Sediment Control Basin (638); Wetland Creation, Enhancement and Restoration (658, 659, 657)
Water Quantity: Insufficient Water	Cover Crop (340); Dike (356); Diversion (362); Irrigation Storage Reservoir (436); Irrigation System, Microirrigation (441); Irrigation System, Sprinkler (442); Irrigation System, Tailwater Recovery (447); Irrigation Water Conveyance (428 and 430); Irrigation Water Management (449); Mulching (484); Obstruction Removal (500); Pumping Plant (533); Spring Development (574); Structure For Water Control (587); Water Harvesting Catchment (636); Water Spreading (640); Water Well (642); Watering Facility (614)
Water Quantity: Inefficient Use of Water	Aboveground, Multi-Outlet Pipeline (431); Dam (402); Dam, Diversion (348); Irrigation Land Leveling (464); Irrigation Regulating Reservoir (552); Irrigation Storage Reservoir (436); Irrigation System (441, 442, 443, 447); Irrigation Water Management (449); Land Smoothing (466); Mulching (484); Pond Sealing or Lining (521A-D); Pumping Plant (533); Residue Management (329, 344, 345, 346); Row Arrangement (557); Spring Development (574); Structure For Water Control (587); Water Well (642); Windbreak Shelterbelt Establishment and Renovation (380, 650)

Resource Concern	Conservation Practices To Address Concern
Water	
Water Quality: Pesticides In Surface and Ground Water	Agrichemical Handling Facility (309); Conservation Cover (327); Cover Crop (340); Filter Strip (393); Irrigation System, Microirrigation (441); Irrigation System, Tailwater Recovery (447); Irrigation Water Management (449); Pest Management (595); Prescribed Grazing (528); Riparian Forest Buffer (391); Riparian Herbaceous Cover (390); Strip-cropping (585); Vegetated Treatment Area (635)
Water Quality: Nutrients and Pathogens in Surface and Ground Water	Agrichemical Handling Facility (309); Anaerobic Digester (365, 366); Animal Mortality Facility (316); Composting Facility (317); Contour Farming (330); Cover Crop (340); Feed Management (592); Filter Strip (393); Heavy Use Area Protection (562); Irrigation Water Management (449); Manure Transfer (634); Nutrient Management (590); Riparian Forest Buffer (391); Riparian Herbaceous Cover (390); Stream Crossing (578); Strip-cropping (585); Waste Storage Facility (313); Waste Treatment (629);
Water Quality: Suspended Sediment In Surface Water	Conservation Cover (327); Contour Orchard and Other Fruit Area (331); Cover Crop (340); Critical Area Planting (342); Filter Strip (393); Irrigation Water Management (449); Lined Waterway or Outlet (468); Mulching (484); Prescribed Forestry (409); Prescribed Grazing (528); Residue Management (329, 344, 345, 346); Riparian Forest Buffer (391); Riparian Herbaceous Cover (390); Sediment Basin (350); Stream Crossing (578); Streambank And Shoreline Protection (580); Strip-cropping (585); Terrace (600); Tree and Shrub Establishment (612); Vegetative Barriers (601); Vegetated Treatment Area (635); Water and Sediment Control Basin (638)
Air	
Air Quality: Particulate Matter	Anionic Polyacrylamide (PAM) Erosion Control (450); Atmospheric Resources Quality Management (370); Conservation Cover (327); Cover Crop (340); Feed Management (592); Firebreak (394); Forest Slash Treatment (384); Forest Stand Improvement (666); Fuel Break (383); Hedgerow Planting (4222); Herbaceous Wind Barriers (603); Irrigation Water Management (449); Mulching (484); Nutrient Management (590); Prescribed Burning (338); Prescribed Grazing (528); Pumping Plant (533); Residue Management (329, 344, 345, 346); Strip-cropping (585); Surface Roughening (609); Waste Facility Cover (367); Waste Treatment (629); Windbreak/Shelterbelt Establishment and Renovation (380 and 650)
Air Quality: Ozone Precursors	Atmospheric Resource Quality Management (370); Nutrient Management (590);Firebreak (394); Forest Slash Treatment (384); Forest Stand Improvement (666); Fuel Break (383); Nutrient Management (590); Pest Management (595); Prescribed Burning (338); Pumping Plant (533)

Resource Concern	Conservation Practices To Address Concern
Air	
Air Quality: Greenhouse Gases (CO_2, N_2O, CH_4)	Anaerobic Digester (365, 366); Atmospheric Resources Quality Management (370); Conservation Cover (327); Cover Crop (340); Feed Management (592);Firebreak (394); Forest Stand Improvement (666); Forest Slash Treatment (384); Fuel Break (383); Nutrient Management (590); Residue Management (329, 344, 345, 346); Riparian Forest Buffer (391); Stripcropping (585); Waste Facility Cover (367); Waste Treatment (629)
Air Quality: Ammonia and Objectionable Odors	Amendments For Treatment of Agricultural Waste (591); Anaerobic Digester (365, 366), Animal Morality Facility (316); Atmospheric Resources Quality Management (370); Composting Facility (317); Conservation Cover (327); Cover Crop (340); Feed Management (592); Hedgerow Planting (422); Nutrient Management (590); Solid/Liquid Separation Facility (632); Waste Facility Cover (367); Waste Storage Facility (313); Waste Treatment (629); Waste Treatment Lagoon (359); Waste Utilization (633); Windbreak/Shelterbelt Establishment and Renovation (380 and 650)
Plants	
Plant Condition: Quantity, Diversity, Health and Vigor	Access Control (472); Brush Management (314); Conservation Crop Rotation (328); Early Successional Habitat Development/Management (647); Field Border (386); Fuel Break (383); Firebreak (394); Forage Harvest Management (511); Forest Stand Improvement (666); Fuel Break (383); Hedgerow Planting (422); Irrigation System, Microirrigation (441); Irrigation System, Sprinkler (442); Irrigation Water Management (449); Mulching (484); Nutrient Management (590); Pasture And Hay Planting (512); Pest Management (595); Prescribed Burning (338); Prescribed Forestry (409); Prescribed Grazing (528); Range Planting (550); Salinity And Sodic Soil; Silvopasture Establishment (381); Tree and Shrub Establishment (612); Management (610); Tree/Shrub Pruning (660); Tree/Shrub Site Prep (490); Upland Wildlife Habitat Management (645); Wetland Creation, Enhancement and Restoration (658, 659, 657); Wetland Wildlife Habitat Management (644)
Plant Condition: Threatened, Endangered and Declining Species	Pest Management (595); Prescribed Burning (528); Prescribed Grazing (528); Restoration and Management Of Rare And Declining Habitats (643); Upland Wildlife Habitat Management (645); Wetland Enhancement (659); Wetland Restoration (657); Wetland Wildlife Habitat Management (644)

Resource Concern	Conservation Practices To Address Concern
Animals	
Domestic Animals &Terrestrial Wildlife: Adequate Cover, Food, Connectivity and Water	Access Control (472); Brush Management (614); Conservation Cover (327); Early Successional Habitat Development/Management (647); Field Border (386); Forage Harvest Management (511); Forest Stand Improvement (666); Hedgerow Planting (422); Pasture And Hay Planting (512); Pest Management (595); Prescribed Burning (338); Prescribed Forestry (409); Prescribed Grazing (528); Range Planting (550); Restoration and Management of Rare And Declining Habitats (643); Riparian Herbaceous Cover (390); Riparian Forest Buffer (391); Shallow Water Development And Management (646;) Silvopasture Establishment (381); Stream Habitat Improvement and Management (395); Tree and Shrub Establishment (612); Upland Wildlife Management (645); Watering Facility (614); Wetland Creation, Enhancement And Restoration (658, 659, 657); Wetland Wildlife Habitat Management (644); Windbreak/Shelterbelt Establishment and Renovation (380 and 650)
Aquatic Animals: Structure, Cover, Food, Connectivity and Favorable Water Temperatures	Access Control (472); Channel Bank Vegetation (322); Fish Passage (396); Nutrient Management (590); Pest Management (595); Prescribed Grazing (528); Restoration and Management of Rare and Declining Habitats (643); Riparian Forest Buffer (391); Riparian Herbaceous Cover (390); Shallow Water Development and Management (646); Stream Habitat Improvement and Management (395); Streambank and Shoreline Protection (580); Wetland Creation, Enhancement And Restoration (658, 659, 657); Wetland Wildlife Habitat Management (644); Windbreak/Shelterbelt Establishment (380)
Fish and Wildlife: Threatened, Endangered and Declining Species	Access Control (472); Brush Management (314); Early Successional Habitat Development (647); Fish Passage (396); Prescribed Forestry (409); Prescribed Grazing (528); Restoration and Management of Declining Habitats (643); Shallow Water Management For Wildlife (646); Stream Habitat Improvement and Management (395); Streambank and Shoreline Protection (580);Tree/Shrub Establishment (612); Riaparian Forest Buffer (391); Upland Wildlife Habitat Management (645); Wetland Enhancement (659); Wetland Restoration (657); Wetland Wildlife Habitat Management (644)